

BAYLEY'S  
POCKET BOOK FOR  
PHARMACISTS

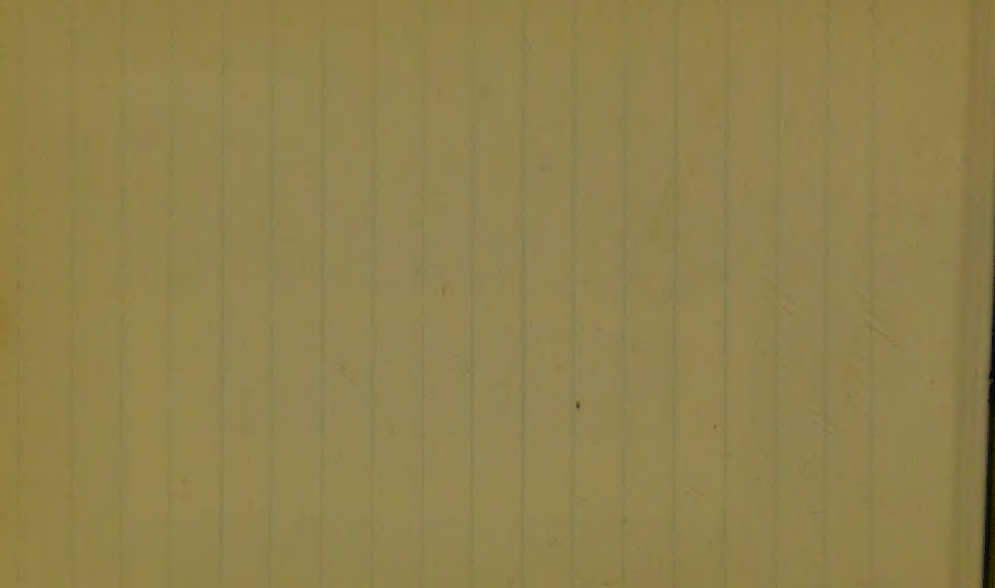


22102029461

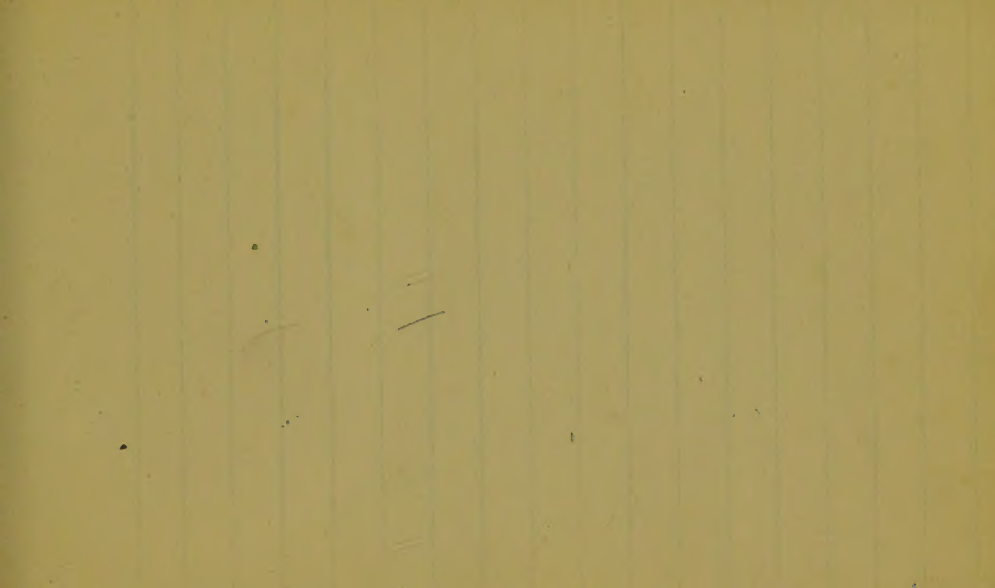
Med

K13198

A.D. 7523



























A

# POCKET-BOOK FOR PHARMACISTS,

MEDICAL PRACTITIONERS, STUDENTS,

• &c., &c.

(BRITISH, COLONIAL, AND AMERICAN).

BY THOMAS BAYLEY,

ASSOCIATE OF THE ROYAL COLLEGE OF SCIENCE, CONSULTING  
CHEMIST, ANALYST, AND ASSAYER;

*Author of 'A Pocket-Book for Chemists,' 'The Assay and Analysis  
of Iron and Steel, Iron Ores and Fuel,' &c., &c.*



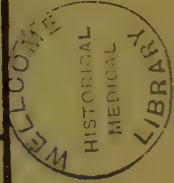
E. & F. N. SPON, 125, STRAND, LONDON.

NEW YORK: 12, CORTLANDT STREET.

1889.

1023

WELLCOME INSTITUTE LIBRARY	
Coll.	weIMOmec
Call	
No.	



W. 51-100

## PREFACE.

---

THIS little book has been compiled for the use of Pharmacists in Britain and her Colonies, and in the United States. It was commenced by the author in conjunction with the late Mr. George Marsh-Jones. The lamented accidental death of Mr. Marsh-Jones when only about 50 pages had been prepared, led to considerable changes in the plan of the work. Mr. Marsh-Jones was an excellent pharmacist and an unwearied compiler of statistical information relating to his own branches of science; and I am only too well aware that the 'Pharmacists' Pocket-Book' would have been more perfect had he survived.

The possibility of including the substances and preparations official in the Pharmacopœia of the United States without unduly swelling the volume, tempts one to speculate whether it would not be possible to have a general Pharmacopœia for the whole of the English speaking race. References to the Pharmacopœias of India, France, and Germany have been made to a minor extent.

The author trusts that the numerous contractions

used throughout the work for economy of space will be easily understood by pharmacists, who, from the nature of their training, are expert in the interpretation of contractions and the deciphering of hieroglyphical signs. The Latin names of *official* drugs and preparations are printed with capital initials, and trivial names without this distinguishing mark, thus: Taraxaci Radix and dandelion root, Vinum Aurantii and orange wine. This plan has the advantage that a certain definite preparation is particularised, if, for example, Lupulus be mentioned as an ingredient of a preparation, it is implied that the *dried* stroboles of the hop must be employed; in the same way Zingiber indicates the *scraped* and *dried* rhizome of the official plant, and Acidum Aceticum Dilutum the acid of official strength, and not any indefinitely diluted acetic acid. This practice, however, was not thought necessary in the case of chemical salts, such as sodii acetat.

Trivial and Latin names have been used indiscriminately in certain portions of the work, the consideration being economy of space.

I have to acknowledge my obligations to the authors of many standard works, particularly to Professor Remington, from whose pre-eminent work on 'American Pharmacy' I have been permitted, by the courtesy of Messrs. Burroughs,

Welcome, & Co., to make copious extracts and adaptations. I am also indebted in a similar manner to the authors of Glückiger and Hanbury's 'Pharmacographia,' Brunton's 'Pharmacology,' Martindale and Westcott's 'Extra Pharmacopœia,' Allen's 'Commercial Organic Analysis,' Murrell's 'Poisoning,' and many others. The pages of the excellent journals, 'The Pharmaceutical Journal,' 'The Chemist and Druggist,' 'The British and Colonial Druggist,' which minister to the scientific and commercial interests of the pharmacist, have also assisted my work.

I trust this little volume will be useful, and that any errors discovered in it will be mercifully criticised on the ground that these are inseparable from a work like the present, abounding in symbols and abbreviations, and bristling with numerical statements. I have tried to make the 'Pocket-Book' as accurate as possible.





# SYNOPSIS OF CONTENTS.

Notes on Materia Medica. . . . .	1
Notes on Ordinary Food Mate- rials, Condiments, &c. . . . .	141
Pharmacy.	
Galenical Preparations:—	
Official in the B.P. (alphabetical) . . . .	144
Official in the U.S.P. (Remington's arrangement) . . . . .	197
Eclectic Resinoids . . . . .	245
Official Drugs arranged accord- ing to Botanical System . . . . .	247
Glossary of Botanical Terms . . . . .	255
List of Latin Terms and Technical Phrases . . . . .	306
Glossary of Latin Words . . . . .	314

	PAGE
<b>MEDICINE.</b>	
Glossary of Medical Terms .. ..	332
Antidote Bag .. .. .	357
Poisoning, Domestic Treatment.. ..	358
Poisoning, Symptoms and Treatment ..	359
Posological Table .. .. .	372
Boiling Points of Liquids, U.S.P. and B.P.	373
Melting Points of Official Substances ..	374
Specific Gravity of Liquids, &c., B.P. ..	375
Specific Gravity of Liquids, &c., U.S.P.	377
Thermometers, Comparison of.. ..	379
<i>Comparison of Barometers (see Weights and Measures).</i>	
Solubility of Medicinal Substances .. ..	383
<b>ANALYSIS:—</b>	
<i>Testing for Official Substances, Animal Secretions, Calculi, Urine, &amp;c. Alkaloids. Table of Ash .. .. .</i>	396
<i>Volumetric Test Solutions of B.P., Behaviour with Indicators .. .. .</i>	410
<i>Alkaloids, Properties and Reactions .. ..</i>	418
<b>Atomic Weights of Elements, B.P., U.S.P., F. W. Clarke .. .. .</b>	459
<b>Weights and Measures:—</b>	
Official in B.P. and U.S.P., <i>Avoirdupois</i> ..	461
<i>Apothecaries', Metric systems</i> .. .. .	461
<i>Conversion of Avoirdupois, Apothecaries', and Metric Systems. See also Posological Table .. .. .</i>	461
<i>Conversion of Percentage into cwt., lbs., &amp;c.</i>	500
<i>Comparison of Quantities per Pint, &amp;c. ..</i>	505
<i>Comparison of Barometers .. .. .</i>	509
<b>MISCELLANEOUS.</b>	
Useful Recipes.. .. .	512

# PHARMACISTS' POCKET-BOOK.

---

## NOTES ON MATERIA MEDICA, B.P.,

### OFFICIAL ORGANIC SUBSTANCES OF INDEFINITE COMPOSITION.

**gr.** = **grain** ; **G.** = **gramme**.

THE following notes have reference principally to the British and American Pharmacopœias, and are merely a series of short and necessarily imperfect remarks on the various medicinal substances. Such information as it is hoped will be of interest to the student is in the first place given ; the Botanical or Zoological Source of the drug, the Geographical and Commercial Source, the Active Principles, the Dose in **grains** and grammes when indicated in the Pharmacopœia, and also brief information with regard to the Toxic and Physiological Properties and the Therapeutical Action of the substance.

The symbol \* indicates that the drug or chemical substance is official in the Pharmacopœia of the United States ; F. and G. convey similar information with regard to the French Codex and the German Pharmacopœia. These references must not, however, be interpreted too strictly, especially in connection with the G.P. and the Codex ; because an oil, for example, may be official in the B.P. and U.S.P., and the leaves from which the oil is made may be specified in the Continental Pharmacopœias ; or again, there may be some minor difference in the nature of a salt (as basic or normal) in the several cases. The sign ! indicates a difference of this or some other nature.

The arrangement is alphabetical, because of the ease thus afforded to reference. Students acquiring systematic information upon materia medica would probably in most instances prefer to use the notes arranged according to the Natural botanical system (pp. 217-254).

**ACACIÆ GUMMI** (\*G. F.). — *Gum arabic.* (Leguminosæ, sub-or. Mimosæ.) Exudn. from *Acacia Senegal* and other sp. Imp. from Egypt, Cordofan, Arabia, India, the Cape. Impur. bark, starch, gum senegal, gums contg. basserin, dextrin. Consists essentially of arabin 86%, the  $\text{Ca, Mg, K}$ , salts of arabic acid ( $\text{C}_{12}\text{H}_{12}\text{O}_4, \text{H}_2\text{O}$ ); contains about 13% water, 4% ash. (Gum arabic is the generic name, gum acac, the name of best samples used in med. Most kinds *L. rotat.*, *Gedda* gum *D. rot.* Austrl. gum often inact. Soln. pps. with basic lead acet., Am. ox.,  $\text{HgCl}_2, \text{FeCl}_3$ , &c. Prevents formn. of numerous precip., e. g. alkaloïds with phospho-molybdate, &c. Best kinds free from sugar by Fehling test. Arabin is ppd. by  $\text{FeCl}_3$  from soln. in weak spir. Forms mucic acid (*Kiliani*) on oxid. with  $\text{HNO}_3$ . Demulcent, emollient. **Dose**, ad lib. Sp. gr. 1.31 to 1.52 at  $15.5^\circ \text{C}$ .

**ACONITI FOLIA ET RADIX** (\*F. G.!). — *Monkshood* (Tubera only (G.P.).) (*Ranunculaceæ*, s. or. *Helleboreæ*.) Leaves with flowering tops, and roots of *Aconitum Napellus*, grown in Britain, root from Germany. Impur. roots of other species. Act. princip. aconitine, napelline. **Poison.** Root has been mistaken for horse-radish. Produces local anæsthesia.

**ADEPS PRÆPARATUS** (\*F. G.). — *Lard.* (*Mammalia*, *Pachyderm.*) Leaf fat of *Sus scrofa*. Imp.  $\text{NaCl}$ , starch, flour, alum, lime

water, other fats. Melts  $37\cdot8^{\circ}\text{C}$ . Consists of palmitin, stearin, olein. As a vehicle in ointments, &c.

**ALOES** (\*F. G.!) (*Liliacæ*), var. *BARRA-DENSIS*, from Aloe vulgaris, var. *SOCOTRINA*, from A. Perryi and prob. other spec. Barb. from W. Indies, Soc from Bombay, Zanzibar. Aloes contains varieties of *Aloin* (25%), resinoid mat., gum, album., vol. oil. **Dose**, 2 to 6 gr.,  $\cdot 15$  to  $\cdot 4$  G. Stomachic, and purg. in larger doses.

**AMMONIACUM** (\*F. G.). (*Umbelliferæ*.) Exud. from Dorema Ammoniacum; Persia and the Punjab. Imp. sand, ammon. fruit, &c. Contains gum, resin, vol. oil, &c. **Dose**, 10 to 20 gr.,  $\cdot 6$  to  $1\cdot3$  G., sp. gr.  $1\cdot207$  at  $15\cdot5^{\circ}\text{C}$ . Therap. eff. sim. to Asafoet., used in chron. pulm. aff.

**AMYGDAIA AMARA** (\*F. G.).—*Bitter Almonds*. (*Rosacæ*, s. or. *Amygdalacæ*.) Ripe seeds of *Prunus Amygdalus* (var. *Amara*), from Syria to Afghanistan. Contns. fix. oil, emulsin, sugar, gum, amygdalin. Emulsin and amygdalin in pres. of aq. produce HCl, vol. oil, glucose, formic acid. Therap. resemb. HCl.

**AM. DULCIS** (\*G.). *Sweet Alnd.*, *Jordan Alnd.*, from *Prunus Amyg.* var. *dulcis*. From Malaga. No HCl formed on contact with water.

**AMYLIUM** (\*F. G.).—*Starch*. (*Graminacæ*.) From grain of *Triticum sativum* (wheat), Zea

Mays (maize), *Oryza sativa* (rice). Emoll. and demul. enema, as a vehicle in enemas, as antidote for iodine.

**ANETHI FRUCTUS** (F.).—*Dill seeds*. (Ord. Umbel.) Dried frt. of *Peucedanum graveolens*. Brit., Europe. Prop. due to vol. oil. Aromatic stimulant, carminative and condimentary; given to child. to prevent griping.

**ANISI FRUCTUS** (\* F. G.).—*Aniseed*. (Ord. Umbel.) Dried frt. of *Pimpinella anisum*. Russia, Malta, S. of Spain, Germany. Prop. due to vol. oil (3-4%). Arom. stimulant; relieves colic and flatulence.

**ANISI SPICULATI FRUCTUS** (F.).—*Star Anise*. (Magnoliaceæ.) Dried frt. of *Illicium anisatum* (I. verum). China, Japan. Used for prep. of vol. oil of anise.

**ANTHEMIDIS FLORES** (\* F.).—*Chamomile*. (Compositæ.) Dried sing. and doub. capitula of *Anthemis nobilis*. Cult. in Britain. Subst. Feverfew and *Matricaria chamomilla*. Cont. vol. oil (2.75%), resin, vol. acid, bitter extract, &c. Aromatic and bitter tonic.

**ARMORACIÆ RADIX** (F.).—*Horse Radish*. (Cruciferæ.) Root of *Cochlearia armoracia*. Cult. in Britain. Vol. oil is formed by the action of myrosin on myronates, both contained in root. Vesic. emetic, stimul., diuret., diaphor.; promotes digestion. Aconite root has been mistaken for this with fatal result.

**ARNICÆ RHIZOMA** (F.). (**Compos.**) Dried rhiz. of *Arnica Montana*; mount. parts of mid. and S. Europe, N. Asia and Amer. Subst. Avena or Herb Bennet (*Geum urbanum*). Contains arnicin, resin, vol. oil, &c. Stimulant, used ext. for bruises (utility doubtful).

**ASAFÆTIDA** (\*F. G.). (**Umbel.**) Exud. from root of *Ferula narthex*. F. scorodosma, &c. Russia, Afghan., Punjaub. Imp. sand, gypsum, flour, &c. Cont. gum, resin, vol. oil. **Dose**, 5 to 20 gr., .3 to 1.3 G. Antispasmodic; used in hysteria, vascular irrit., inflam. of stomach, hooping cough, flat., colic, &c.

**AURANTII CORTEX** (\*F. G.).—*Bitter Orange*. (**Aurantiaceæ.**) Dried outer rind of *Citrus vulgaris*. Spain, S. Europe, Azores. Cont. vol. oil and bitter princip. Stomachic, tonic, flavouring.

**A. FRUCTUS** (F. G.). Ripe fruit of same spec. (G.P. unripe).

**BALSAMUM PERUVIANUM** (\*F. G.).—*Balsam of Peru*. (**Leguminosæ.**) Semi-liquid balsam exuded from the trunk of *Myroxylon Pereire* after bark has been beaten, scorched, and removed. Loc. Salvador, Guatemala, Sonsonate (not Peru). Imp. castor oil, balsam copaib. Cont. cinnamein, cinnamic acid, benzoic acid, resin. **Dose**, 10 to 15 m, .6 to 1.0 c.C. Sol. in chlorfm., R.Sp. Stimulant, slightly tonic, expectorant, detergent. Internally in chronic affect. of mucous membrane; externally to ulcers and sores.

**BALSAMUM TOLUTANUM** (\*F.).—*Bals. of Tolu.* (Legum.) Yellow-red to red-brown balsam exud. from trunk of *Myroxylon toluifera* after incising bark. Loc. New Granada, Carthagea. Imp. resin? Cont. cinnamein, cinnamic acid, benzoic acid, resin. **Dose, 10 to 20 gr.**; '6 to 1·3 G. Action and use similar to Bals. Peru.

**BELÆ FRUCTUS.**—*Bengal Quince.* (Aurantiacæ.) Dried half-ripe frt. of *Ægle Marmelos*. Loc. Malabar, Coromandel. Subst. rind of mangosteen frt. (*Garcinia Mangostana*). Does *not* contain tannin (Pluck. and Hanb.). Astringent, used in dysentery, &c.

**BELLADONNÆ FOLIA ET RADIX** (\*F.G.).—*Deadly Nightshade.* (Atropacæ.) Leaves with branches and dried root of *Atropa Belladonna*, wild or cult. in Brit. Adult. leaves of *Solanum nigrum*, *S. dulcamara*. Contains atropine (act. prin.) as bimalate. **Poison.** It diminishes sensib. and irritat.; causes dilat. of pupil, numbness, giddiness; dryness of mouth, throat, diffic. of deglutition, nausea; injection of conjunctiva, protrusion of eye, syncope; delirium, aphonia; according to dose. Used to allay pain and irritab. in neuralgia, &c.; topically as an antispasmodic in strictures, obstructions; to dilate the pupil. Rec. mentioned as vernif.

**BENZOINUM** (\*F.G.).—*Gua-benzoin.* (Styracæ.) A balsamic resin exudg. from incis. in bark of *Styrax benzoin* and other sp. of *S.*



**Loc.** Siam, Sumatra, India, Penang. **Cont.** benzoic acid and two (or three) resins. **Effects** as balsams, used in chronic pulm. affect.

**BUCHU FOLIA** (\* F.). (**Rutaceæ.**) Dried leaves of *Barosma betulina*, *B. crenulata*, *B. serratifolia*. **Loc.** Cape of G. Hope. **Cont.** a vol. oil, barosmin (dios.), resin, &c. **Aromatic** stimulant and tonic, diuretic, diaphor. **Used** specif. in treatg. urine-genital organs.

**CAFFEINA** (\* F. G.).—*Caffeine*, *Guanine*, *Theine*. An alkaloid from leaves of *Camellia thea* (*Camelliaceæ*), or dried seeds of *Coffea arabica* (*Rubiaceæ*), also *Guarana*, *Paullinia sorbilis* (*Sapindaceæ*). See Index, "Alkaloids." **Dose**, 1 to 5 gr., .06 to .30 G. **Uses:** as diuretic; for headache.

**CALUMBÆ RADIX** (\* F. G.). (**Menispermaceæ.**) Trans. slices of root of *Jateorhiza calumba*. **Loc.** coast of E. Africa from Ibo to Zambesi. **Subst.** *Coccinium fenestratum*, *Bryonia dioica*, *Frasera Walteri* (*Amer. calumba*). **Cont.** calumbin, berberine, starch, &c., no tannin. **Dose**, 5 to 20 gr., .3 to 1.5 G. **Stomachic** and tonic; used to allay vomiting, in later stages of diarrhoea and dysentery.

**CAMBOGIA** (\* F. G !). — *Gamboge*. (**Guttiferæ.**) A gum-resin from *Garcinia Hauburii*. **Loc.** Siam. **Imp.** starch or flour. **Cont.** gum and resin. **Dose**, 1 to 4 gr., .06 to .25 G. **Poisonous** in large doses; used as a drastic and counter-irritant purg., as an anthelmintic and hydragogue.

**CAMPHORA** (\*G.).—*Laurel Camphor*. (Lauraceæ.)  $C_{10}H_{16}O$ . A stearoptene from wood of Cinnamonum Camphora, pur. by sublimation. Loc. China, Japan, also Formosa, Batavia. Adult. artif. camphor. Sol. in alcohol, ether, chlorfm., milk, oils; nearly insol. in water. Melts  $142\cdot2^{\circ}C.$ , boils  $204\cdot5^{\circ}C$ . **Dose**, 1 to 10 gr.,  $\cdot06$  to  $\cdot66$  G. **Uses**: as an exhilarant in nervous and hypochondriac cases, as a vascular excitant, as an anaphrodisiac, antispasm., &c., locally as an excitant. **Poison**. in large doses; has proved fatal to adults.

**CANELIÆ CORTEX** (F.).—*Canella or Wild Cinnamon, White Cinnamon*. (Canellaceæ.) The bark of Canella alba deprived of its corky layer and dried. Loc. W. I. Isls., S. Amer. Adult. "Winter's Bark" from Drimys Winteri.  $BaN_2O_6$  and  $FeSO_4$  cause no pp. in its infusion, except when Winter's bk. is present. **Cont**. vol. oils, resin, starch, bitter principle, mannite, &c. **Dose**, 10 to 30 gr.,  $\cdot7$  to 2 G. **Properties**, aromatic (oil and resin), tonic (bitter prin.).

**CANNABIS INDICA** (\*F. G.).—*Indian Hemp*. (Cannabinaceæ.) The dried flowering or fruiting tops of (fem. plt.) Cannabis sativa, not freed from resin. Loc. India. **Cont**. cannabin (resind. act. prin.), gum, extractive, a little vol. oil. Employed in med. for its hypnotic, anodyne, and antispasm. properties.

**CANTHARIS** (\*F. G.).—*Spanish Fly*. (Ord. Coleoptera.) The beetle, Cantharis ves-

catoria, dried. Loc. Hungary, also Russia, Sicily, but not Spain now. Adult. powd. euphorbium. Cont. cantharidin, vol. oil, fat. Cantharidin,  $C_{10}H_{12}O_4$ , has the properties of a stearoptene; it is a vesicating agent, sol. in acetic ether, chloroform, oils, &c. Melts and vol.  $200^{\circ} C.$ , vol. slowly at low temp. Properties, vesicating, irritates the urinary and genital organs.

**CAPSICI FRUCTUS** (\* F. G.).—*Guinea or Pod Pepper, Chillies, Cayenne Pepper.* (C. annuum (L. P. and F. Cod.).) (**Solanaceæ.**) Dried fruit of *Capsicum fastigiatum*. Loc. Zanzibar. Act. prin. capsaicin,  $C_6H_{14}O_2$  (Thresh), cryst., melts  $59^{\circ} C.$ , crys. on cooling, vol.  $115^{\circ} C.$  ( $240^{\circ} F.$ ), sp. gr. 1.060. With  $H_2SO_4$  and heatg. red to purple black; sol. in ether, amyl alcohol, acetic ether, benzene. Dose,  $1/2$  to 1 gr., .03 to .07 G. in pills. Used as a condiment, and in med. as a local stim. to mouth, throat, and stomach.

**CARDAMOMI SEMINA** (\* F. G.).—*Cardamoms.* (Zingiberaceæ.) Dried ripe seeds of Malabar cardamom, *Elettaria Cardamomum*. Loc. Malabar coast. Best stored in pericarp till used; pericarp 26 to 40% (G. M. Jones). Cont. vol. oil of Card., which turns yellow on keep. and detonates with iod. Used for flavg. and for agreeable and aromatic effects.

**CARUI FRUCTUS** (\* F. G.).—*Caraway Seeds.* (Umbel.) Dried fruit of *Carum Carui*. Loc. Britain, Germany. Cont. vol. oil of Car., 5%. Aromatic stimulant; condiment, flavg.

**CARYOPHYLLUM** (\* F. G.).—*Cloves*. (*Myrtaceæ*.) Dried flower-bud of *Eugenia caryophyllata*. Loc. Moluccas, Sumatra. Cont. vol. oil (18%), a tannin, resin, &c. Tinct. of iron renders inf. blue. **Dose** of oil of clove, 2 to 5 m. Stomach. and carm., princip. use flavg.

**CASCARILLÆ CORTEX** (\* F. G.). (*Euphorbiaceæ*.) Dried bark of *Croton Eluteria*. Loc. Bahamas. Subst. Copalchi bark, Quinquina nova, &c. Cont. bitter, crys., non-astring. subst., cascarillin resembling salicin, vol. oil, resin. **Dose**, 10 to 25 gr., .6 to 1.6 G. Aromatic stimulant and tonic, and to check excessive secret. of mucus.

**CASSIÆ PULPA** (\* F.). (*Legumin.*) Pulp of pods of *Cassia fistula*. Loc. W. Indies, India, N. Africa. Cont. sugar, gum, a tannin, a bitter prin. cassiin (Caventou). Purgative, but prod. nausea and griping. Given with other remed. in febrile and inflam. affect. **Dose**, 30 to 120 gr., 2 to 8 G.

**CATECHU** (\* G.).—*Pale Catechu*, *Gambir*. (*Rubiaceæ*.) An extract of leaves and young shoots of *Uncaria Gambir*. Loc. Singapore. Adult. starch. Occurs in cubes, averaging 10-12 G. (G. M. J.). Cont. catechu-tannic acid, also catechin (greyish green with ferric salts). **Dose**, 10 to 30 gr., .7 to 2 G. Produces local and remote effects of astringents generally. Used in affect. of voice and throat; as a stomachic in dyspeptic compl.; as an alvine astringent.

**CERA FLAVA** and **C. ALBA** (\*F. G.).—*Yellow and White Beeswax.* (Hymenoptera.) The unbleached and bleached wax of the hive bee, *Apis mellifica*. Practically the wax of various species of bee. Loc. general. Adult. water, mineral matters, starch, flour, resins, fats, paraffin, ozokerite, vegetable waxes. Cont. cerolein (abt. 4 or 5%), cerotic acid or cerin (not a const. constit.), myricin or myricyl palmitate which fuses  $64^{\circ}$  C., and is the chief part of the constit. insol. in alcoh. Cera flava melts  $64^{\circ}$  C., Cera alba  $69^{\circ}$  C. The bleaching is directed in B. P. to be effected by exposure to air and light, but nitric acid is sometimes employed. S G. .959 to .970. Used extern. as a mild sheathing or protective agent, in ointments, &c.

**CEREVISIÆ FERMENTUM.**—*Beer Yeast.* (Fungi.) The ferment used in brewing beer, *Saccharomyces cerevisiæ*. Loc. Britain. Dose, 1/2 to 1 oz., 14 to 28 G. Therap. mild laxative, tonic and antiseptic; used extern. in yeast poultice.

**CETACEUM** (\*F. G.).—*Spermaceti.* (Cetaceæ.) Nearly pure cetin, from the oil in the head cavities of the sperm whale, *Physeter macrocephalus*. Loc. Pacific and China seas. Adult. tallow, stearic and palmitic acids, wax. Fuses  $45^{\circ}$  to  $49^{\circ}$  C. Density .943. Sol. in hot alcoh., ether, fix. oils. Use: prep. of ointments. Cetin is usually stated to be cetyl palmitate, but is probably rather more complex in nature.

**CETRARIA** (\* F. G.).—*Iceland Moss*. (*Lichenes*.) The entire lichen *Cetraria islandica*. Loc. N. Europe. Contains lichen-starch and inulin, cetraric acid, gum, mucryst. sugar, extractive. It is a nutritious and easily digested aliment, mildly tonic.

**CHIRATA** (\*).—*Chiretta*. (*Gentianaceæ*.) The dried plant, *Ophelia Chirata*, collect. when frt. begins to form. Loc. N. India. Properties resembl. gentian, bitter, stomachic, feebly laxative.

**CHRYSAROBINUM** (\* G.). — *Goa Powder*. (*Leguminosæ*.) Concretionary matter yielded by *Andira araroba*. Loc. India. Cont. chrysophan, and its oxid. prod. chrysophanic acid; resinous and gummy matters, glucoside, &c. Dissol. in  $\text{H}_2\text{SO}_4$  to form org. to org.-red sol., in  $\text{KHO}$  sol. to form fluorescent sol. of same colour, passing to carmine on oxidation by exposure. Used in treatment of skin disease, e. g. ringworm, in the form of ointment.

**CIMICIFUGÆ RHIZOMA** (\*).—*Actæa Root*. (*Ranunculaceæ*.) Dried rhizome and roots of *Cimicifuga racemosa*. Loc. N. America, Siberia. Contains a vol. oil and resinous matters; its infusion blackens with persalts of iron. Used as a remedy for rheumatism, lumbago, chorea, by Amer. practit.

**CINCHONÆ CORTEX** and **C. RUBRÆ CORT.** (\* F. G.). (*Cinchonaceæ*.) For the products of the *Cinchona*, vide page 448.

**CINNAMOMI CORTEX** (\*F. G.). — *Ceylon Cinnamon Bark*. (Lauraceæ.) Dried inn. bark of shoots from truncated stocks of *Cinnamomum zeylanicum*. Loc. Ceylon. Adult. inferior kinds, cassia bark (Chinese C.). Cont. vol. oil (ab.  $\cdot 17\frac{0}{100}$ ), tannic acid, cinnamic acid, &c., no starch. Prop. a stomachic stimul., nerv. and vascul. stim., astringent: used to check griping, in flatul. and spasmodic affect. of digest. org., in uterine complt., &c.

**COCA** (\*! F.). (Erythroxylaceæ.) The dried leaves of *Erythroxylon Coca*. Loc. Peru, Bolivia. Leaves often spoilt. Cont. cocaine, and hygrine. **Dose**,  $\frac{1}{2}$  to  $\frac{3}{2}$ , 2 to 8  $\mathcal{G}$ . Coca when chewed removes and prevents fatigue, symptoms of hunger and thirst are suspended, appet. not impaired; applied locally its prep. produce local anæsthesia.

**COCCUS** (\*F.). — *Cochineal*. (Hemiptera.) Dried (below  $65^{\circ}$  C.) fem. insect, *Coccus cacti*. Loc. Mexico, Teneriffe, Canary I. Cont. fatty matter and carminic acid. Used as colourg. agent. Carminic is basic Al salt of carminic acid.

**COLCHICI CORMUS** and **C. SEMINA** (\*! F. G.!). — *Meadow Saffron*. (Melanthaceæ.) Fresh corm of *Colchicum autumnale* gathered end of June or begin. of July, seeds at end of July. Act. prin. an alkaloid colchicine (q. v.), as gallate. Poisonous; in med. doses it promotes the action of secret. org., espec. intest. mucous membs. Used in gout, rheumatism, dropsy.

**CETRARIA** (\*F.G.).—*Iceland Moss*. (*Lichenes*.) The entire lichen *Cetraria islandica*. Loc. N. Europe. Contains lichen-starch and inulin, cetraric acid, gum, uncryst. sugar, extractive. It is a nutritious and easily digested aliment, mildly tonic.

**CHIRATA** (\*).—*Chiretta*. (*Gentianacæ*.) The dried plant, *Ophelia Chirata*, collect. when frt. begins to form. Loc. N. India. Properties resemble gentian, bitter, stomachic, feebly laxative.

**CHIRYSAROBINUM** (\*G.).—*Goa Powder*. (*Leguminosæ*.) Concretionary matter yielded by *Andia araroba*. Loc. India. Cont. chrysophan, and its oxid. prod. chrysophanic acid; resinous and gummy matters, glucoside, &c. Dissol. in  $\text{H}_2\text{SO}_4$  to form org. to org.-red sol., in  $\text{KHO}$  sol. to form fluorescent sol. of same colour, passing to carmine on oxidation by exposure. Used in treatment of skin disease, e.g. ringworm, in the form of ointment.

**CIMICIFUGÆ RHIZOMA** (\*).—*Actæa Root*. (*Ranunculacæ*). Dried rhizome and roots of *Cimicifuga racemosa*. Loc. N. America, Siberia. Contains a vol. oil and resinous matters; its infusion blackens with persalts of iron. Used as a remedy for rheumatism, lumbago, chorea, by Amer. practitioners.

**CINCHONÆ CORTEX** and **C. RUBRÆ CORT.** (\*F.G.). (*Cinchonacæ*.) For the products of the *Cinchona*, vide page 418.



**CINNAMOMI CORTEX** (\*F. G.). — *Ceylon*

*Cinnamon Bark.* (Lauraceæ.) Dried inn. bark of shoots from truncated stocks of *Cinnamomum zeylanicum*. Loc. Ceylon. Adult. inferior kinds, cassia bark (Chinese C.). Cont. vol. oil (ab. 17%), tannic acid, cinnamic acid, &c., no starch. Prop. a stomachic stimul., nerv. and vascul. stim., astringent; used to check griping, in flatul. and spasmodic affect. of digest. org., in uterine complt., &c.

**COCA** (\*!F.). (Erythroxylaceæ.) The dried leaves of *Erythroxylon Coca*. Loc. Peru, Bolivia. Leaves often spoilt. Cont. cocaine, and hygrine. **Dose**, 1/2 to 5/2, 2 to 8 G. Coca when chewed removes and prevents fatigue, symptoms of hunger and thirst are suspended, appet. not impaired; applied locally its prep. produce local anaesthesia.

**COCCUS** (\*F.). — *Cochineal.* (Hemiptera.) Dried (below 65° C.) fem. insect, *Coccus cacti*. Loc. Mexico, Teneriffe, Canary I. Cont. fatty matter and carminic acid. Used as colourg. agent. Carmine is basic Al salt of carminic acid.

**COLCHICI CORMUS** and **C. SEMINA** (\*!F. G.!). — *Meadow Saffron.* (Melanthaceæ.) Fresh corm of *Colchicum autumnale* gathered end of June or begin. of July, seeds at end of July. Act. prin. an alkaloid colchicine (q. v.), as gallate. Poisonous; in med. doses it promotes the action of secret. org., espec. intest. mucous membs. Used in gout, rheumatism, dropsy.

Loc. trop S. Amer. Subst. has been mixed with nux vom. bark. (Cont. vol. oil, resins. bitter princ. (cusparin). Prop. arom. and stim. (vol. oil and resin), tonic (bitter princ.).

CUSO (\* F. G.). — *Kouso*, *Kusso*, *Kosso*, *Rosaceæ*, s. or. *Roseæ*.) Dried panicles of *Ilagenia abyssinica*. Loc. Abyssinia. Cont. vol. oil, bitter acrid resin, two var. tannin (about 25%), koussin (kossin) crys. bitt. princ.  $C_{41}H_{33}O_{10}$ , wh. yields isobutyric acid. (See *Filix*, p. 18.) Dose, 1/4 to 1/2 oz., 7 to 14 G. Prop. vermicide, as anthelmintic. Action due to koussin, not merely mechanical.

DIGITALIS FOLIA (\* F. G.). — *Forglere*. (*Scrophulariaceæ*.) Leaves of *Digitalis purpurea*; gathered in second year's growth, during flowering, and dried. Loc. Britain. Adult. leaves of *Inula Conyza* (Ploughman's Spikenard), *Symphytum officinale* (Comfrey), *Verbascum Thapsus* (St. Mullein), &c. Conts. digitalin, digitalein, digitonin, digitin (glucosides); also digitoxin. Leaves lose 81 to 86% in drying. Dose of leaves, 1/2 to 1½ gr., .03 to .1 G. Used as tonic to heart, to promote action of absorbents (dropsy), as a diuretic, as a specific over cerebr. spin. syst.

ECBALLII FRUCTUS (\* F.). — *Squirting Cucumber*. (*Cucurbitaceæ*). Fruit, very nearly ripe, of *Ecballium Elaterium*. If quite ripe, act. princ. lost by discharge of seed. Loc. Britain, Malta. The juice deposits a sediment, ELATERIUM, (about ½ oz. from 40 lb. fruit,

6 gr. from 40 fruits), containing 20 to 30% ELATERIN, the acting principle, which is a neutral cryst. substance, nearly insol. in water and ether, sol. in alcoh., of bitter taste. Adult. of Elaterium, chalk. The act. prin. is found only in juice surrounding seeds, yield uncertain. **Dose of Elaterium, 1/16 to 1/2 gr., .004 to .032 G.** Prop. and use: drastic purg., hydragogue, used for dropsy.

ELEMI (F.).—*Mauiia Elemi*. (Amyridaceæ.) Concrete resin. exud., probably from *Canarium commune*. Loc. Mauiia (Mexico, Moluccas). Factitious simpls. are made of yellow resin, turps, and oil of spike. Cont. dextro-rot. vol. oil  $(C_5H_8)_2$ ; resin 60% amyrin  $(C_5H_8)_3H_2O$ , a neutral subst. also dextro-rot., insol. in cold alcoh., sol. in hot; bryoidin  $(C_5H_8)_43H_2O$ , neut. subst. sol. in alcoh.; elemic acid  $(C_5H_8)_7O_4$  with laevo-rot. action in alcoh. soln. Used externally as ointment to stimulate indolent ulcers and promote discharge from sores, &c.

ERGOTA (\* F. G.).—*Spurred Rye*. (Fungi—Claviceps; Gramineæ—Secale). The sclerotium of *Claviceps purpurea*, produced between the pales and replacing the grains of rye, Secale cereale. Loc. Europe, America. Conts. ergotinic and splacelonic acids and an alkald. cornutine (Kobert.). **Dose, 20 to 30 gr., 1.3 to 2 G.** Used to cause contraction of uterus, and to check hemorrhage.

FARINA TRITICI. — *Wheat flour*. (Gramineæ.) The grain of *Triticum sativum*

ground and sifted. Loc. general temp. region. Adult. alum, plaster of Paris, earthy carb., &c. Cont. starch ab. 75.0, albuminoids, fat, cellulose, lignose, mineral matter.

**FEL BOVINUM PURIFICATUM** (\*).—*Ox-gall*. (Ruminantia.) Purified gall of Bos Taurus. Loc. Britain. Bile is of the nature of soap; it contains the Na or K salts of taurocholic acid (contg. S), and glycocholic (no S) acid, with cholesterol, fats, salts of fatty acids, chloride, phosphate of Na, Mg, Ca, &c., colouring matters. Ox bile conts. chiefly glycoch. acid; human bile chiefly tauroch. ac. Ash (ox bile) 12.0 abt. Dose, 5 to 10 gr., .3 to .7 G. Slightly laxative, and useful where secret. of bile is deficient.

**FIGUS** (\* F.).—*Fig*. (Moraceæ.) Dried fruit of Ficus Carica. Loc. Turkey (Smyrna). Cont. glucose 70 %. Emollient, demulcent, laxative.

**FILIX MAS** (\*! F. G.).—*Male Fern*. (Filices, s. or. Polypodiaceæ.) Rhizome with persist. bases of petioles of Aspidium Filix-mas; collected in late autumn, divested of scales, roots, &c, dried. Loc. Britain. Cont. fatty oil 6.0, vol. oil, filicie acid, gum, albumen, mucus, starch 10.0, tannic acids 11.0, gum, sugar, &c. Filicie acid ylds. butyric acid, koussin ylds. iso-b. acid. Fluck. and Hamb. Dose, 50 to 100 gr., 3 to 7 G. Anthelmintic, properties due to oil.

**FENICULI FRUCTUS** (\* G.).—*Fennel*. (Umbel.) Dried fruit of Feniculum capillaceum (cult.). (F. dulce, F. Cod.) Loc. Malta. Subst.

fruit of wild fennel, which is smaller. Act. prin. vol. oil. Arom. stimul., carminative. The powder drives away fleas.

**GALBANUM** (\* F. G.). (**Umbel.**) A gum resin from *Ferula galbaniflua*, F. rubricaulis, &c. Loc. India and Levant. Cont. resin 66%, gum 27% (arab. and bass.), vol. oil 3% (lævogyre), &c. The resin is said to prod. a blue oil at 248° F., 172·8° C. No alliac. odour. Antispasmodic, stim. expectant.; often given with asafoet., which it resembles in prop. Used in mucous catarrh, amenorrh. chron. rheum. Extern. in indolent swellings.

**GALLA** (\* F. G.).—*Galls, Nut-galls, Oak-apples, Dead Sea Apples.* (**Cupuliferæ**—*Quercus*); Ord. Hymenoptera, Tribe Cynipidæ, Cynips.) Exerescences on *Quercus lusitanica* caused by punct. and egg deposits of *Cynips gallæ tinctoriæ*. Loc. Smyrna, Aleppo, Bombay. Cont. tannin, 25–60%, gallic acid, mucilage, lignin, salts, &c. Used as astringents in alvine and other hæmorrh., chronic muc. discharge; topical astring.

**GELSEMIUM** (\*).—*Yellow Jasmine, Wild Jessamine, Woodbine, Carolina Jessamine; not a true Jessamine.* (**Apocynaceæ.**) Dried rhiz. of *Gelsemium nitidum*. Loc. U. States. Cont. resin, starch, gallic acid, fix. oil; a white crys. almost tasteless, feebl. acid subst. partial. vol., spar. sol. in cold, sol. in hot aq., insol. in alcohol, sol. in ether-alcohol. This subst. ident. with or closely resemb. resculin; soln. fluoresc. yell.

by trans., blue by reflect. light. Also a poison. alkd. gelsemine, sol. in water, ether, alcob., chlorf., ppd. by tannin,  $\text{AuCl}_3$ ,  $\text{PtCl}_4$ , phospho-molyb. acid. (Gelsemine neutrals. acids, and is **poisonous**; dilat. the pupil. **Dose**, 5 to 30 gr., .3 to 2 G. Prop. febrifug., used in fits, tetanus, fevers aris. from malaria, dysmenorrh., after-pains, spas. strict. of urethra, hyster., spas. croup, chiefly in neuralgia, rheumatism. In large doses has proved fatal.

**GENTIANÆ RADIX** (\*F. G.).—*Gentian.* (Gentianaceæ.) Dried rt. of *Gentiana lutea*. Loc. Cent. and S. Europe. Adult. other spec. of gentian. Cont. gentisic acid, pale yell. cryst., forms salts, sol. in alcob., spar. sol. in aq., gentiano-tannic acid (gentianin), pectin, sugar, &c. Prop. simple bitter tonic, sometimes narcotic. Used in dyspep., &c.

**GLYCYRRHIZÆ RADIX** (\*F. G.).—*Liquorice Root.* (Leguminosæ, s. or. Papil.) Root and subterr. stem of *Glycyrrhiza glabra*. Loc. Britain. Cont. resinous oil, gum, glycyrrhizin a glucoside forming glycyrretin and glucose with dil. acids. Used as flavg. agent.

**GLOSSYPIUM** (\*F.).—*Cotton Wool.* (Malvaceæ.) Hairs of seed of *Gossypium barbadense* and other spec. freed from fat, &c. Loc. U. States, India, Egypt, &c. Cont. nearly pure cellulose, less than 1% ash. Uses: mechanical and for prep. of pyroxylin.

**GRANATI RADICIS CORTEX** (\*F. G.).—*Pomegranate.* (Myrtaceæ.) Dried root bark

of *Punica granatum*. Native of Syria, N. India. Obtained fr. S. Europe. Subst. box-tree bark, no tannin, barberry bark, yell. very bitt. Cont. tannin 20%, gallic acid, resin, mannite, and two actv. alkalis., pellettierine and isopelletierine, two other inactv. alkalis. Astringent. Uses: anthelmintic.

**GUAIACUM LIGNUM** (\* F. G.).—*Lignum Vitæ*. (*Zygophyllaceæ*.) Heart-wood of *Guaiacum officinale*, or *G. sanctum*. Loc. Jamaica, Cuba, S. Domingo. The most import. constituent is **GUAIACI RESINA**, obtained from the stem by incision or nat. exud. Oxid. agents colour wood and solutions green or blue. Cross fibre of wood characteristic. Wood contains abt. 3% resin. Acid prin. abounds most in alburnum; resin in heart-wood. *Guaiacum* resin conts. two resins, guaiacic acid, extractive, &c. **Dose**, (resin) 10 to 30 gr., '7 to 2 G. **Prop.** (resin) acrid stimul., alterative. Used in chron. rheumat. and skin diseases, obstruct. and painf. menstr., tonsillitis.

**GUTTA PERCHA** (\* G. F.). (*Sapotaceæ*.) Concrete juice of *Dichopsis gutta*, and other spec. of same ord. Loc. Ceylon. Plastic above 49° C.; insol. in aq., alcob., alk. solns., dil. acids; almost entir: sol. in  $\text{CHCl}_3$ , sol. in oil turp.,  $\text{CS}_2$ , benzene. Uses: mechanical.

**HÆMATOXYLI LIGNUM** (\* F.).—*Logwood*. (*Leguminosæ*, s. or. *Papilionaceæ*.) Heart-wood of *Hæmatoxylon campechianum*. Loc. Campeachy, Honduras, Jamaica. S. G. 1·057.

Cont. vol. oil, resin, tannic acid. Also hæmatoxylin (hæmatin) ( $C_{16}H_{11}O_6$ ), red, prism. crys., subst., of bitter, acrid, astring. taste; turned yell. or red by acids, purp. or violet by alkali; ppd. by alum, tin, lead, &c. Mild astringent; used in leucorrh., infant. diarrh., to prevent sweating, in diabetes.

### HEMIDESMI RADIX. (Asclepiadaceæ.)

Dried rt. of *Hemidesmus indicus*. Loc. India, Ceylon. Act. prin. hemidesmin is a stearoptene (Christison). Used in India as substitute for sarsaparilla; used principally for flavorg.

**HIRUDO (K.G.).—Leech. (Hirudinea.)** Two varieties: (1) *Sanguisuga medicinalis*, the true, brown, or speckled, English leech. Nat. of Europe generally; (2) *S. officinalis*, the green leech, from Barbary, Spain, France, Germany, Hungary. Less employed in Britain than *S.* med. Deser. (both kinds); body soft, smooth, 2 in. long, taper. to each end, plano-conv., wrinkled transvers., back olive-grn., with six rusty red longit. stripes. Belly of (1) green-yell. spotted with black, of (2) olive-green not speckled. *Oniscus aquaticus*, a small aquat. crustacean, destroys young leeches. Putrefaction of water in which they are kept prevented by introducing fragments of iron. A leech draws on an average  $5\frac{1}{2}$ , about  $7\frac{1}{4}$  being maximum. Salt causes them to fall off.

**HORDEUM DECORTICATUM (K.).—Pearl Barley. (Graminaceæ.)** Dried seeds of *Hordeum distichon*, decorticated. Loc. Britain.



Cont. starch 6 $\frac{1}{2}$ %; albuminoids 12%; fatty matter 20%; dextrin, sugar, salts, 2-3%. Malt is barley in which about 40% of starch has been turned into dextrin and glucose by germination; germin. stopped by heating to 100° F., 37-7° C. (pale malt), 180° F., 82-2° C. (amber), 260° F., 126-7° C. (brown). Uses: extract of malt, as a vehicle for cod-liver oil; decoct. as demul. and vehicle for other medicines.

**HYOSCYAMI FOLIA** (\* F. G.). — *Henbane*. (Solanaceæ, s. or. Atropacæ.) Fresh leaves, flowers, and branches; also dried leav. of *Hyoscyamus niger*. Loc. Britain. Annual henbane leaves should be *without stalk*: dried leaves hairy (dist. from *Stramonium*), toothd. in margin (dist. from *Belladonna*). Contains pois. alkaloid q. v., hyoscyamine, as makate (syn. duboisine, daturine). The alkaloid is isomer. with atropine, and is destroyed by aq. caust. alk. but not by carb. or bicarb. Dil. pupil. Plant yields very **pois.** oil on dist. as from other Solanacæ and foxglove. Prop. anodyne, sedative, narcotic, soporific, used in lieu of opium, in neuralgia, rheumat. gout, peristit., milk abscess, affect. of urino-genit., scirrhus, cancer.

**IPECACUANHA** (\* F. G.). (Rubiaceæ.) Brazilian or Lisbon ipecac. Drd. root of *Cephaelis Ipecacuanha*. Loc. Rio Janeiro, Bahia, Pernambuco, &c. Adult. woody ipec. (*Ionidium ipec.*), Amer. ipec. (Gillenia stipulacea), wild ipec. or ipec. spurge (*Euphorbia ipec.*), striated ipec. (*Psychotria emetica*), white or undulated ipec. (*Richardsonia scabra*). Cont.

an alkaloid (q. v.) emetine, vol. and fix. oil, wax, starch 42%, lignin, &c. (Pelletier), also ipecacuanhic or cephaëlic acid (Willich). **Dose**, expect. 1/2 to 2 gr., .03 to .12 (i.; emetic, 15 to 30 gr., 1 to 2 G. Bark (most active) 80% wood 20%. Therap.: irrit. nauseant, emetic, expector., diaphor., sedat. Emetine 1 gr. causes vomiting, 2 gr. fatal to dog. Used in hientery, dysentery, croup, asthma, whooping cough, bronch. hemorrh., as an emetic, &c.

**JABORANDI** (\*F.G.). (**Rutacæ**.) Dried leaflets of *Pilocarpus pennatifolius*. Loc. Pernambuco. Cont. an alkaloid q. v. which is the active prin. **Dose**, 5 to 60 gr., .3 to 4 G. Uses and effects: as a sialagogue, and sudorific.

**JALAPA** (\*F.G.).—*Jalap.* (**Convolvulacæ**.) Vera Cruz jalap. Dried tubercules of *Ipomœa purga*. Loc. Vera Cruz. Adult. Tampico jal. (*Ipomœa simulans*); male or stalkd. jal., woody jal., Orizaba root (*Ipomœa orizabensis*). Contents, resin 10%, of which not more than 1% sol. in ether; jalupin  $C_{31}H_{30}O_{16}$ , a glucoside insol. in ether; yielding jalapinol and glucose with dil. acids; starch, gummy extractive, sugar, &c. The active principle is JALAPÆ RESINA. Adult. Resins of other spec. disting. by solubility. **Dose** (of Jalap), 10 to 30 gr., .7 to 2 G.; (of the resin) 2 to 5 gr., .13 to .32 G. Prop. and uses: actively purgative, unsuitable in inflam. conditions of alim. canal.

**KAMALA** (\*G.).—*Wurms, Wars.* (**Euphorbiacæ**.) Glands and hairs from fruits of

*Mallotus philippinensis*. Loc. India. A red-brown mobile powder, ignites at a flame with flash, sol. in alkali. to deep red liquid. Cont. resinous coloug. substs., gum, cellulose, wax, albuminds., ash less than 4%. According to Anderson, confirmed by Groves, contains rottlerine, a yellow (? impure) crys. body, easily modif. by expos. to air, probably physiol. inactive. Dose, 30 gr. to 1/4 oz., 2 to 7 G. Uses: vermifuge.

**KINO** (\* F.).—*East Indian Kino*. (Leguminosæ.) Juice from incis. in bark of *Pterocarpus Marsupium*, inspiss. without artif. heat. Loc. Burmah, Malabar, Bombay (best). Other commercial kinos are, pulas kino, butea gum, Bengal kino, or dhak-tree gum, from *Butea frondosa*; African kino from *Pterocarpus erinaceus*; Botany Bay kino from *Eucalyptus resinifera*; Jamaica kino or sea-side grape from *Coccoloba uvifera*. Adult. of kino, extract Rhatany. Cont. a variety of tannin and extractive 75%, no gallic acid, red gum, pyrocatechin. Dose, 10 to 30 gr., .7 to 2 G. Prop. and uses: astringent.

**KRAMERIÆ RADIX** (\* F. G.). — (Radix *Rhatanhiæ* G.P.) Peruvian and Savanilla. (Krameriaceæ.) Dried root of *Krameria triandra* (Peru), and *K. Ixina* (Sav.). Loc. South America. Cont. Ratanhic tannic acid, col. matter, Ratanhin (neutr. subst.). Prop. and uses: astringent and tonic. Bark more active than wood.

LAC.—*Milk of Cow, Bos Taurus.* Vide Foods.

LACTUCA (\*F. G.!).—*Wild or strong-scented Lettuce.* (Compositæ, s. or. Ligulifloræ.) Flowing herb of Lactuca virosa. Leaves of L. vir. prickly on heel, dist. from L. sativ. Loc. Britain. Dried juice, or Lactucarium, contains vol. oil, yell. red tasteless resin, green. yell. acrid resins, sugars, gum, albumen, concrete oil or wax, oxalates and other salts, and a neutr. act. prin. lactucin (acic. crys.). Watery soln. very bitter, neutr., not pptd. by any reagent. Prop. and uses: anodyne, hypnotic, antispasmodic; uncertain in action, and only used in certain cases in lieu of opium.

LARICIS CORTEX.—*Larch Bark.* (Coniferæ.) Dried bark of Pinus Larix, collect. in spring, deprived of its outer rough portion. Loc. Europe. P. Larix yields Venice turpentine and manna de Briançon. Tree is becoming extinct in Britain owing to disease. The larch cont. larixinic acid  $C_{10}H_{10}O_5$  (Stenhouse), which sublim. at  $93^{\circ}C.$ , melts at  $153^{\circ}C.$ , and dissol. in water, alcohol, and (spar.) in ether. Aq. soln. is pptd. by lime, lead or silver salts, and rend. purple-red by ferric salts. Prop. astringent, checks perspiration, stimulant and diuretic. Rarely used.

LAUROCERASI FOLIA (F.).—*Cherry-laur.* (Rosaceæ, s. or. Amygdalæ.) Fresh leaves of Prunus Laurocerasus. Loc. Britain. Yields with water  $HCl$  and vol. oil (benzoyl hydride  $C_7H_6O$ ). P. Laur. should be disting. from

*Cerasus lusitanica* (Portugal laurel) which has leaves evergreen, oblong acuminate, entire, without glands. Leaves of *P. Laur.* may be mixed with *Laurus nobilis* (sweet bay) which are used to pack solazzi juice. Prop. and uses: cherry-laurel-water (contg.  $\cdot 1\%$  HCl), sedative, &c., as HCl.

**LIMONIS CORTEX** (\* F. G.).—*Lemon Peel*. (Aurantiacæ.) Fresh outer rind of *Citrus Limonum*. Loc. Spain, Portugal, Italy, Azores. Cont. bitter prin., vol. oil of lemons, gallic acid, &c. Prop. and uses as a flavg. agent.

**LIMONIS SUCCUS** (\*).—*Lemon Juice*. Freshly expressed juice of *Citrus Limonum*. Loc. vide *L. cortex*. Adult. artificial lemon juice made from tartaric, sulphuric, and other acids. Cont. citric acid, with smaller quantities of malic, formic, acetic, and other org. acids. Should contain 36 to 46 gr. of citric acid per fl  $\bar{z}$ , 82 to 105 Gr. per litre. Best indicator on titration, phenol phthalein. Uses: as flavg. agent, anti-scorbutic, refrigerant, antiperiodic, as antidote to alkalies, in rheumatism.

**LINI SEMINA** (\* F. G.).—*Linseed*. (Linacæ). The dried ripe seeds of *Linum usitatissimum*. *L. FARINA*, the ground seeds of same. Loc. Russia, India, &c. Adult. from 12 to 20 other seeds, as flax dodder, wild rape, wild mustard, &c. Prop. and uses: emollient and demulcent, employed as infusion to allay irritation.

**LOBELIA** (\* F. G.).—*Indian Tobacco*. (*Lobeliaceæ*.) Dried flowg. herb of *Lobelia inflata*. Loc. N. America. Cont. a vol. alkaloid (q. v.); lobeline, the act. prin. which exists as salt of lobelic acid. Prop. and uses: narcotic, acrid, antispasmodic, expectorant in small doses, emetic in larger; in poisonous doses, like tobacco. The seeds in cases of poisoning are easily distinguished from all other seeds by cross ridges and furrows like basket-work.

**LUPULUS** (\* F. G.).—*Hop*. (*Cannabaceæ*.) Dried strobiles of *Humulus Lupulus*. Loc. England. Cont. vol. oil (trace), bitter prin. (lupulite), tannin, gum, fat, some free acid, salts. **LUPULIN** is the glandular powder at the base of each bract; it contains vol. oil; lupulite, a neutr. bitter prin.; resin, malates, valerianic acid 1%, &c. Bangerer states that the bitter principle is a cryst. acid insol. in water, but forming bitter sol. of oxidn. products. Prop. and uses: tonic, stomachic, soporific.

**MANNA** (\* F. G.). (*Oleaceæ*.) A saccharine exud. from trans. incis. in stem of *Fraxinus Ornus* (flowerg. or round-leaved ash). Loc. France, Sicily, S. Europe. Impur. artificial manna, consisting of glucose, sucrose, &c. Cont. mannite  $C_6H_{14}O_6$ , 60 to 80% common sugar, extractive matter, abt. 10% moisture, resin, &c. Dose, 60 gr. to 1 oz., 4 to 28 gr. Therap. mildly laxative.

**MASTICHE** (\* F.).—*Mastic*, *Mastic*. (*Anacardiaceæ*.) Resinous exudn. from *Pistacia*

**Lentiscus.** Loc. Scio, where trees yielding mastich are male only. Mastich conts. 90 % of mastichic acid,  $C_{20}H_{32}O_3$  ( $\alpha$  resin) sol. in alcohol., and masticin ( $\beta$  resin) insol. in alcohol. or  $KHO$ ; also a trace of vol. oil. Mastich is sol. in warm acetone,  $\frac{1}{2}$  pt., with dextro-rot. polrzn.; sol. in ether, oil of cloves, 5 pts.; nearly insol. in glac. acetic ac., benzol. Used in dentistry and in stopping bleeding from leech bites, also in coating pills. Supposed to have stim. actn. on bronch. muc. memb.

**MATICÆ FOLIA** (\* ! F.). — **Piperacæ.**  
Dried leaves of *Piper angustifolium*. Loc. Bolivia, Peru, Brazil, New Granada, Venezuela. Quito matico is *Euphorbium glutinosum* (Compositæ). Subst. some other spec. of *Piper*. Cont. antanthic acid (crys.), tannin, resin, vol. oil, 2.7 %/o, &c. Princip. use mechanical. to arrest bleeding from small wounds; rarely used intern. for vesic. catarrh, gonorrh., &c.

**MEL** (\* F.).—*Honey*. Vide Foods.

**MEZEREI CORTEX** (\* F.).—(**Thymelacæ.**)  
Dried bark of *Daphne Mezereum* or *D. Laureola*. Loc. Europe, Italy, to Arctic, and eastwd. to Siberia (*D. Mez.*), *D. Laur.* is evergreen. Cont. act. prin. a resind. subst. in inner bark, daphnin  $C_{15}H_{16}O_9$  + 2 Aq. Used extern. as irritant, internally as diuret. and alterative.

**MICA PANIS.**—Vide Foods.

**MORI SUCCUS** (F.).—*Mulberry juice*. (**Moraceæ.**) From ripe fruit of *Morus nigra*.

Loc. Asia Minor, Armenia, south Caucasian regions to Persia, Italy. Dark purple liq. of 1·06 sp. gr. contg. acid supposed to be malic, glucose, colouring matter, &c.; uses: flavouring and colouring.

**MOSCHUS** (\* F. G.).—*Musk*. (**Ruminantia**.) The inspissated and dried secretn. from the preputial follicles of *Moschus moschiferus* (the musk animal). Loc. Cent. Asia. Cont. an odorifer. subst., fats, resins, sats. **Dose**, 5 to 10 gr., .32 to .65 G. Prop. and uses. Antispasmodic and stimulant, with powerf. stim. actn. on resp. centres. Given in hysteria, collapse, asthenic pneumonia, bronchitis, gangrene of lungs, fever, &c.

**MYRISTICA** (\* F. G.).—*Nutmeg*. (**Myristicaceæ**.) Dried seed of *Myristica fragrans*, divested of arillus or shell (mace). (*M. moschata*, F. Cod.) Loc. Malayan Archipelago. Cont. fixed oil (oil of mace so-called), vol. oil, 3 to 8%; the latter, oil of nutmeg, is dextro-rot. to pol. light. Aromatic, stimulant, and carminative; pin. used as a spice.

**MYRRHA** (\* F. G.).—(**Amyridaceæ** or **Burseraceæ**.) Gum-resins exudn. from *Balsamodendron Myrrha*. Loc. Arabia Felix, and Abyssinia. Cont.: gum, 50 to 60%, sol. in aq. and partly comp. of arabin; a resinous matter (myrrhic acid), 27% sol. in alcohol, chlorfm., part. in alkalis,  $\text{CS}_2$ ; vol. oil,  $\frac{3}{4}$  to 4% of sp. gr. .988 at 13° C., dextro-rotat. distilling from



266° C. to 290° C. Used as an astringent mouth-wash or gargle; intern. as expectorant in bronchitis, in leucorrh., amenorrh., bronchorrhœa.

**NECTANDRÆ CORTEX.**—*Bebeeru* or *Bibiru Bark.* (Lauraceæ.) Dried bark of *Nectandra Rodiei* (the greenheart). Loc. British Guiana. Cont. an alkald., beberine or beberine, prob. ident. with buxine and pelosine. Used as tonic and antiperiodic, similar to quinine but less powerful, and seldom used.

**NUX VOMICA** (\* F. G.).—(**Loganiaceæ.**) Seeds of *Strychnos Nux-vomica*. Loc. India, Burmah, Cochin China, N. Australia. Cont. two alkalds., strychnine and brucine, vide p. 454. For prop. and uses see *Strychnine*, p. 98; action of brucine similar.

**OLEUM CAJUPUTI** (volatile) (\* F. G.).—(**Myrtaceæ.**) The vol. oil distill. from leaves of *Melaleuca minor* (M. *Cajaputi*, U.S.P.), M. *Leucadendron* (G.P. and F. Cod.). Loc. Ind. Archipelago and Malay Peninsula, N. Australia. Cont. hydrate of cajuputene (*Cajuputol*  $C_{10}H_{16}H_2O$ ); also of iso- and paracajuputene. Dose, 1 to 4 m, .06 to .24 c.c. Stimul. and antispasmodic.; used extern. in skin. dis., internally in neuralgia, hysteria, chron. rheumatism, &c. Useful applictn. to decayed teeth.

**OLEUM CROTONIS** (\* F. G.) (fixed) (OL. *Tiglii* U.S.P.) (**Euphorbiaceæ.**) Fix. oil

expressed from seeds of Croton Tiglium. Loc. the East. Comp. complex and not well made out. **Dose**, 1/3 to 1 m, .02 to .06 c.c. Used extern. as an irritant, intern. it is a violent purgative and anthelmintic.

**OLEUM EUCALYPTI** (\* F.) (volatile).—(**Myrtaceæ**.) The vol. oil distilled from fresh leaves of Eucalyptus Globulus, E. amygdalina, and other spec. of E. Loc. Australia. It consists principally of eucalyptol,  $C_{10}H_{16}O$ . **Dose**, 1 to 4 m, .06 to .24 c.c. A powerful antiseptic, especially when old and oxidized. It is used extern. as a wash for cavities, &c., as inhalation in phthisis, bronchitis, ozæna, &c.; as hypoderm. injection in pyæmia. Useful in septicæmia.

**OLEUM JUNIPERI** (\* F. G.) (volatile).—(**Coniferæ**.) The oil distill. from full-grown unripe fruit of Juniperus communis. Loc. S. Europe, &c. It cont. a mixture of levogyre oils  $C_{10}H_{16}$  and polymers of  $C_{10}H_{16}$ . **Dose**, 1 to 4 m, .06 to .24 c.c. Used as a local stimulant, and diuretic. It is contained in hollands.

**OLEUM LAVANDULÆ** (\* F. G.) (volatile).—(**Labiâtæ**.) The oil distill. in Britain from flwrs. of Lavandula vera. Loc. S. Europe. It is a mixture of oxygenated oils and steareptene. **Dose**, 1 to 4 m, .06 to .24 c.c. Stimulant and carminative; used also as perfume. Inferior oil is distilled from the whole plant.

Oil of spike ("foreign oil") is distill. from *L. spica*.

**OLEUM MENTHÆ PIPERITÆ** (volatile).—(**Labiatae**.) The oil distill. in Britain from fresh flowering peppermint, *Mentha piperita*. Loc. Europe, &c. The oil from *Eastern* mints deposits menthol on cooling. Dose, 1 to 4 m, .06 to .24 c.c. Carminativ. and stimulat.; used to relieve flatulence and colic, and lessen griping; also to prevent mosquito bites.

**OLEUM MENTHÆ VIRIDIS** (\*F.) (volatile).—(**Labiatae**.) The oil distill. in Britain from fresh flowering spear-mint (common garden-mint), *Mentha viridis*. It cont. a hydrocarbon almost identical with oil of turpentine ( $C_{10}H_{16}$ ), and an oxidised oil isomeric with carvol  $C_{10}H_{14}O$  (Gladstone). Dose 1 to 4 m, .06 to .24 c.c. Carminativ. and stimulat. and used as oil of peppermint.

**OLEUM MORRHUÆ** (\*F.G.) (fixed).—(**Pisces, Teleostee**.) Fix. oil expressed from fresh livers of the cod, *Gadus Morrhua* B. P. (or other species. F., G., U.S.P.). Cont. olein, palmitin, stearin, traces of iodides, and a substance probably allied to biliary acids. Used as a nutritive and easily assimilated fatty food.

**OLEUM OLIVÆ** (\*F.G.) (fixed).—(**Oleaceae**.) Fix. oil expressed from ripe fruit of *Olea Europæa*. Loc. S. Europe. Olein chiefly; also palmitin, &c). Used principally in plasters, soups, &c.

**OLEUM PINISYLVESTRIS** (volatile).—(**Coniferæ**.) The vol. oil distill. from fresh leaves of *Pinus sylvestris*. Loc. N. Europe. Its action resembles that of oil of turpentine.

**OLEUM RICINI** (\* F. G.) (fixed).—*Castor-oil*. (**Euphorbiaceæ**.) Fix. oil expressed from seeds of *Ricinus communis*. Calcutta. Cont. several fatty acid glycerides, including that of ricinoleic acid, peculiar to it. **Dose**, 1 to 8 fl. 3, 3·5 to 28 c.c. Non-irritant purgative.

**OLEUM ROSMARINI** (\* F. G.) (volatile).—(**Labiataæ**.) A vol. oil distill. from flowering tops of *Ro. marinus officinalis*. Loc. S. Europe, &c. Cont. a hydrocarbon  $C_{10}H_{16}$ , and oxygenated oils,  $C_{10}H_{16}O$ ;  $C_{10}H_{18}O$ . **Dose**, 1 to 4 m., ·06 to ·24 c.c. Stimul. and carminatv.; used as other carminatv. oils, and useful in hysteria.

**OLEUM RUTÆ** (\* F.) (volatile).—*Oil of Rue*. (**Rutaceæ**.) A vol. oil distill. from fresh herb of *Ruta graveolens*. Europe. Consists of methyl-nonyl-ketone  $CH_3 \cdot CO \cdot C_9H_{19}$ . **Dose**, 1 to 4 m., ·06 to ·25 c.c. Rubefacient, stimul., antispasmod., emmenagog., carminatv. Used in amenorrhœa, hysteria, convulsions, flatulence.

**OLEUM SANTALI** (\* F.) (volatile).—(**Santalaceæ**.) A vol. oil distill. from wood of *Santalum album*. E. Indies. Cons. of  $C_{15}H_{24}O$  and  $C_{15}H_{26}O$ . **Dose**, 10 to 30 m., ·6 to 1·8 c.c. Action and uses similar to copaiba.

**OLEUM TEREBINTHINÆ** (\* F. G.) (volatile).—*Turps, Oil of Turpentine*. (**Coniferæ**.) A vol. oil distill. from turpentine. **Dose**, 10 m

to 4 fl. 3, ·6 to 14·2 c.c. It consists of various terpenes ( $C_{10}H_{16}$ ). Extern. as rubefac. and counter-irritant in rheumat., chron. bronchit., pleurisy, peritonitis; as inhalation in phthisis; intern. in hæmorrhage and ulceratn. of intesln., other hæmorrhages, &c. As a vermifuge for tapeworms.

**OLEUM THEOBROMATIS** (\* F. G.) (fixed).—*Cocoa Butter*. A concrete oil expressed from seeds of Theobroma Cacao, **Sterculiaceæ**. Cent. America (N. and S.). Consists of stearin and olein. Used as base for suppositories and as an application to skin.

**OLEUM**.—For properties of the various Oils and those not inserted here, vide p. 193.

**OPIUM** (\* F. G.).—(**Papaveraceæ**.) In-spissated juice of unripe capsules of *Papaver somniferum* (poppy), *grown in Asia Minor*, and containing about 10·0 % morphine. Cont. morphine, codeine, thebaine, and abt. 14 other alkalds. (see p. 452); also meconic acid, and meconin and meconiasin, neut. substances. Of the alkalds., morphine and oxidinorphine have a narcotic effect, while in papaverine, codeine, narcotine, and thebaine, the tetanic effect is more pronounced. For prop. and uses see Morphina (notes on Mat. Med Inorg.). Opium is given to lessen pain; as an anodyne; to lessen irritation of organs. It is applied in the form of ointment, suppositories, or hypodrmc. injectn. to relieve pain, given intern. to allay irritabty. of stomach, also in diarrh., dysentery,

peritonitis, cholera, &c. In catarrh. conditus. of respir. tract, phthisis, cardiac dyspncea, diabetes, hæmorrhg., neuralgia, sciatica, cancer, dysmenorrh., pleurisy, pneumonia, cystitis, &c., &c. In fevers, mania, chorea, melancholia, malarial poisoning, &c. Should be *very cautiously* given to children.

OVI ALBUMEN ET O. VITELLUS (\* F.).—(Gallinæ.) White and yolk of egg of the domestic fowl, Gallus Bankiva (var. domesticus). The white of egg consists of water 82 to 88 %, albumen 12 %, ash .6 %; yolk contains water 50 %, vitellin 60 %, fat 30 %, cholesterolin .4 %, salts of lime, &c. Prop. and uses: albumen forms insol. compds. with some poisons, as Cu, Hg, &c.; hence given as antidote, followed by emetic. As diet by mouth or rectum.

PAPAVERIS CAPSULÆ (G.).—*Poppy Heads*. (Papaveraceæ.) Nearly ripe dried capsules of Papaver somniferum, grown in Britain. They contain a small amount of morphine, more when unripe, meconic acid, and traces of papaverine, papaverosine, &c.; seeds do not contain these, but much oil of poppy seed. Prop. and uses somewhat similar to opium, q. v., but less certain in action; given as opiate to children, and extern. as fomenta. to allay pain.

PARREIRÆ RADIX (\* F. G.).—*Parcira Brava*. (Menispermaceæ.) Dried root of Chondrodendron tomentosum. Loc. Brazil. Stem and roots, of Cissampelos Parcira, of common false

*Pareira brava* from a spec. of *Menisperm.* of *Abuta rufescens* (white Par. br.), of yellow Par. br. from Guiana, have all been sold for *Pareira brava*. Cont. an alkald., buxine (peltine), identical with beberine. Chiefly employd. as stimul. to muc. memb. of genito-urinal tract; it is also used as a bitter tonic.

**PEPSIN** (\*F.G.).—(**Ruminantia**, &c.) A prepn. of muc. membr. of pig, sheep, or calf. The stomach is cleansed, and the inner surface scraped with a blunt knife, and the scrapings dried below 120° F. (49° C.). Pepsin is the proteolytic ferment of the stomach; it renders proteids soluble. Besides pepsin, the lining membr. of the stom. contains a ferment which curdles milk.

**PHYSOSTIGMATIS SEMEN** (\*F.).—*Calabar Bean.* (**Leguminosæ.**) Dried seeds of *Physostigma venenosum*. Loc. Western Africa. Beans kidney-shaped, and cont. two alkalds., physostigmine and calabarine. **Dose**, 1 (to 3) gr., .03 G.; gradually increased. Calabar bean paral. the spinal cord, post. columns first, and the medulla; the brain is irritd. but not paral. It stim. involunt. muscul. fibre, thus causing contractn. of pupil, intraocular tension, and spasm of accommodation in eye, increased contractl. power of heart, increased peristalsis, expulsn. of urine. It stim. secretn. of saliva, sweat, tears, and mucus. Death occurs from paral. of respirn. Antidote emetic and cautious use of atropine. Used in diseases of eye (glaucoma, staphyloma, &c.), tetanus, poisoning from

strychnine, paralysis of insane, mania, paraplegia, locomotor ataxia, constipation from atony of intestl. walls, in bronchitis, catarrh, dyspnoea, due to weakness of muscles. Calabarine causes convulsns. similar to those of strychnine. Physostigmína (G.),—syn. Eserine, (Physostigminum Salicylicum (G.P.),  $C_{15}H_{21}N_3O_2$ , the alkald. obtained from Calabar bean, causes contraction of pupil, and is used for Lamecllæ Physostig.

**PIMENTA** (\*).—*Pimento*, *Allspice*. (**Myrtaceæ**.) Dried full-grown unripe fruit of *Pimenta officinalis*. Loc. W. Indies. Cont. tannin, starch, and vol. oil very like oil of cloves, &c. Uses same as cloves.

**PIPER NIGRUM** (\* F.).—*Black Pepper*. (**Piperaceæ**.) Dried unripe fruit of *Piper nigrum*. Loc. E. Indies. Cont. resin, vol. oil, and piperine (Piperina of U.S.P.), which has feeble alkald. power, and which treatd. with  $HNO_3$  and then  $KHO$ , forms piperic acid and a vol. liq. colorless alkald., piperidine. **Dose**, 1 to 10 gr., '06 to '65 G. Used as stomachic, as substit. for cubebs in gonorrh., as stimulat. to muc. memb. in hemorrhhds.; as a condiment.

**PIX BURGUNDICA** (\* F.).—(**Coniferæ**.) Yell. brown, hard, brittle, resinous exudn. from *Pinus Picea* (melted and strained). Loc. Switzerland. Compos. an amorph. resin, and oil of turp. with isomeric oils. It has a peculiar fragrant odour, and dissolv. readily in glaci. acct. acid, acetone, absol. alcoh., spirit of 75  $\frac{0}{100}$ .



Used as stimul. (emplast.) in chron. rheumat. and bronchitis. Frequently adulterated or fictitious.

**PIX LIQUIDA** (\* F. G.).—*Wood Tar*. (**Coniferæ**.) Tar obtained by destructv. distilln. of wood of *Pinus sylvestris* and other pines. The aq. layer (pyroligneous acid) above the tar cont. methyl. alcohol ( $\text{CH}_4\text{O}$ ), acetone ( $\text{C}_3\text{H}_6\text{O}$ ), &c. The tar itself cont. toluene ( $\text{C}_7\text{H}_8$ ), xylene ( $\text{C}_8\text{H}_{10}$ ), pyrocatechin ( $\text{C}_6\text{H}_4(\text{HO})_2$ ), &c. Thick viscid brown-black tar, spar. sol. in water (pyrocatechin), sol. in alcoh., fixed and vol. oils, alkalm. solns. **Dose**, 20 m to 5i, .i to 3.5 c.c. Stimul. to muc. memb. and skin, and used in chron. scaly skin diseases. Given as tar-water, 1-4 5; as vapour in phthisis and chron. bronchitis.

**PODOPHYLLI RHIZOMA** (\* F.).—(**Ranunculaceæ**.) Dried rhiz. and rootlets of *Podophyllum peltatum*. Loc. U. States. Cont. berberine, an alkald. with little action, and:—

**PODOPHYLLI RESINA** (G.). (*podophyllin*.) a resinous substance consistg. of a fatty and a resins. acid. **Dose** (of podophyllin) 1/8 to 1/2 gr., .008 to .03 G. Drastic purgativ. and hepat. stimult., and used in biliousness (dark stools), congestn. of liver, &c. Handled incautiously may cause conjunctivitis.

**PRUNUM** (\* F.).—(**Amygdalaceæ**.) The dried drupe of *Prunus domestica*. Import. from S. France. Cont. malic acid, albumd. and sacchard. matters. Laxative, often given with scenna.

**PTEROCARPI LIGNUM** (\* F.).—*Red Sandal* (*Sanders*) *Wood*. *Santalum Rubrum* U.S.P.) (*Leguminosæ*.) Heart-wood of *Pterocarpus santalinus*. Loc. Ceylon. Contus. resinous ruby-red colorg. matter (santalin). Used to colour Tinct. Lavand. Co.

**PYRETHRI RADIX** (\* F.).—*Pellitory*. (*Compositæ*.) Dried root of *Anacyclus Pyrethrum*. Loc. The Levant. Compositn. not fully investigated; cont. a resin, vol. oil, sugar, gum, tannic acid, &c. Sialog.; used in tooth-ache, headache, relaxed throat, aphonia and paral. of tongue and throat. Intern. in globus hystericus.

**QUASSIÆ LIGNUM** (\* ! F. G.).—(*Sinuribaceæ*.) Wood of *Picrara excelsa*. Loc. Jamaica. Cont. a neutrl. bitter juice, quassain, a yellow resin, no tannin. It is a pure bitter stomachic tonic.

**QUERCUS CORTEX** (\* ! F. G.).—*Oak Bark*. (*Cupuliferæ*.) Dried bark of small branches and younger stems of *Quercus Robur*. Loc. Britain. Cont. quercitannic acid, quercin, &c. Chiefly used as a local astringent in throat diseases, and as an injection in gonorrh. and leucorrhœa. U.S.P. has *Q. alba*; similar composition.

**RESINA** (\* ! F. G.).—*Colophony, Rosin*. (*Coniferæ*.) The residue left after distilling the oil of turps. from the crude oleo-resin of var. spec. of *Pinus*. Loc. Finland, Russia, *P. sylvestris*; Austria, Corsica, *P. Laricio*; France,

*P. maritime*; *N. America*, *P. australis*, *P. Teda*. Colophony softens at  $80^{\circ}\text{C}$ ., and melts at  $100^{\circ}\text{C}$ . ( $212^{\circ}\text{F}$ .) into a clear liquid. Sp. gr. 1.17, sol. in alcohol, 8 pts., and acetone, benzole, &c. It is mostly abietic anhydride,  $\text{C}_{10}\text{H}_{16}\text{O}_4$ . Used extern. as stimul. ointment or plaster.

**RIAMNI FRANGULÆ CORTEX** (\* G.).—*Frangula Bark*, *Buckthorn*. (**Rhamnaceæ**.) Dried bark of *Rhamnus Frangula*, from young trunk and modrt. sized branches, kept at least a year before use. Loc. Britain, Europe. Cont. frangulin, a cathartic substance. Purgative, **poison**, when fresh.

**RHAMNI PURSHIANI CORTEX**.—*Sacred Bark*, *Cascara Sagrada*. (**Rhamnaceæ**.) Dried bark of *Rhamnus Purshianus*. Loc. N. America. Purg. principle undetermined. Used as a purgative. The F. Cod. contains *Rhamnus catharticus*, which has purg. properties.

**RHEI RADIX** (\* F. G.).—*Rhubarb*. (**Polygonaceæ**.) Root of *Rheum palmatum*, *Rheum officinale*, and other spec. Loc. China and Tibet. Cont. as chief constit. chrysophanic acid (yell. crys.), chrysophane (glucsd.), phloretin, and other resins, matters, rheo-tannic acid, &c. **Dose**, 5 to 20 gr., .32 to 1.3 G. Tonic and astringent in sm. doses, purg. in larger; useful to remove irritating matter from intestines.

**RHŒADOS PETALA** (F.).—*Red Poppy*. (**Papaveraceæ**.) Fresh petals of *Papaver*

Rheas. Loc. Britain. Cont. a red colgr. matter, rheadine (non-toxic), &c. No opium alkalds. Used for colouring only.

ROSÆ CANINÆ FRUCTUS (F.).—*Hips*. (Rosaceæ.) The ripe fruit of *Rosa canina* and other allied species found in Britain. Contains crys. sugar, gum, citric and malic acids free or in combination. Uses: for the prep. of the confection of roses.

ROSÆ CENTIFOLIÆ PETALA (\* F. G.).—*Cabbage Rose Petals*. (Rosaceæ.) Fresh petals of *Rosa centifolia*. Cult. in Britain. Cont. sugar, fat, acids, red colgr. matter, traces of gallo-tannic acid and vol. oil. Much used as a vehicle, sometimes given internally.

ROSÆ GALLICÆ PETALA (\* F.).—*Red Rose Petals*. (Rosaceæ.) The fresh and dried petals of *Rosa gallica* collected before expanding. Loc. Britain. Comp. similar to *Rosa centifolia*. Used (confection) as pill basis and as linctus, the acid infusion as a slightly astringent gargle.

SABADILLA (F.).—*Ceradilla*. (Liliaceæ.) Dried ripe seeds (pericarp removed) of *Schoenocaulon officinale*. Loc. Mexico. Cont. three alkalds, veratrine, the act. prin., with cevadine and cevadilline in sm. quantities. (Wright & Luff.) Used in prep. of veratrine.

SABINÆ CACUMINA (\* F. G.).—*Savin Tops*. (Coniferæ.) Fresh and dried tops of *Juniperus Sabina*. Cult. in Britain. Act. prin. is vol. oil of savin, which contains an oil having the

formula  $C_{10}H_{16}O$  and B.P.  $160^{\circ}C$ , and a greater portion boiling abv.  $200^{\circ}C$ , but no terpene (Tilden). Savin tops cont. traces of tannic matter. The oil is used extern. as an irritant to keep open issues or blisters. Savin has been used (irregularly) to procure abortion (**Poison**), and as an emmenagogue for non-pregnant patients. **Dose of oil, 1 to 4 ml, .06 to .24 c.c.**

**SAMBUCI FLORES** (\*F.G.).—*Elder Flowers*. (Caprifoliaceæ.) The fresh flowers of *Sambucus nigra*. Loc. Britain. *S. canadensis* (*Sambucus* of U.S.P.) is extremely similar, but rather more fragrant. Cont. small quant. of butter-like vol. oil, lighter than water. Uses: (Aqua) as a vehicle.

**SANTONICA** (\*G.).—*Levant Wormseed*. (Flores Cincæ of G.P.) (Compositæ.) Dried unexpended flower-heads of *Artemisia maritima*, var. *Stechmanniana*. Cont. santonin, abt. 2%, also vol. oil ( $C_{10}H_{18}O$ ), abt. 1 to 2%, and fatty acids, angelic acid, &c. Santonin is used as a vermicide for round worms.

**SARSÆ RADIX** (\*!F.G.).—*Radix Sarsaparillæ* G.P. (Smilacæ.) Dried root of *Smilax officinalis* (*S. medica*, F. Cod.). Loc. Cent. America (formerly obtained viâ Jamaica). Act. prin. is a crys. substance, parallin or smilacin, converted into parigenin and sugar by dil. mineral acids. Sarsaparilla is believed by some to be a valuable alterative tonic, and diuretic, and has been used in syphilis, gout, and chron. rheumat., scrofula, skin diseases, &c. Others consider it almost inactive.

**SASSAFRAS RADIX** (\* F. G.).—(**Lauracæ.**)

Dried root of *Sassafras officinale*, *Nees*. Loc. Canada, U. States. U.S.P., root bark is used. Act. prin. (root and root bark), a vol. oil wh. contains safrol  $C_{10}H_{10}O_2$ , and saffrene  $C_{10}H_{16}$ . The bark cont. a little tannic acid and a red color. matter, probably derived from it. *Sassafras* destroys infusoria; it is used in rheumatism and syphilis. It is a stimulant diaphoretic.

**SCAMMONIÆ RADIX** (F. G.).—(**Convolvulacæ.**) The dried root of *Convolvulus Scammonia*. Loc. Syria, Asia Minor, Greece. The root treated with R. S. V. yields **SCAMMONIÆ RESINA**, which consists of a resin, and is completely sol. in ether. **Dose of resin, 3 to 8 gr.,** .2 to .5 gr. Scammony resin is a drastic purgative, and is used as a derivative in dropsy and cerebral affections. It increases secretn. of intestns., and bile is essential to its action.

**SCAMMONIUM** (\*) is a gum resin exuding from incisions in the root. The resin of scammony in alc. soln. imparts no blue tint to a slice of raw potato (guaiacum resin does).

**SCILLARIA** (\* F. G.).—*Squill*. (**Liliacæ**) The bulb of *Urginea Scilla*, scaled, sliced, and dried. Loc. Mediterranean coasts. Cont. scillipierin sol. in aq., scillitoxin (act. prin.) sol. in sprt., scillin sol. in boilg. ether (Merek). It is used as an adjunct to digitalis, which it resembles in action; also as a diuretic and expectorant, the expectoration being profuse, but difficult to expel.

**SCOPARI CACUMINA** (\*).—*Broom Tops* (**Leguminosæ**.) The fresh and dried tops of *Cytisus scoparius* from indiguns. plants. Cont. scoparin, a neutr. substance, and a vol. alkaloid sparteine, resembling coniine in action. Given as diuretic in chron. kidney disease and in cardiac dropsy.

**SENEGA RADIX** (\* F.G.).—(**Polygalacæ**.) The dried root of *Polygala Senega*. Loc. N. America. Cont. senegum or polygalic acid, probably identical with saponin. Used as a stimulant, expectorant, diaphoretic and diuretic in pneumonia, asthma, and rheumatism; in amenorrhœa, aortic disease, &c.

**SENNA ALEXANDRINA ET S. INDICA** (\* F. G.).—(**Leguminosæ**.) *S. Alex.* the leaflets of *Cassia acutifolia*, *S. Ind.* the leaflets of *Cassia angustifolia* (*C. elongata*). Act. prin. cathartic acid (glucoside). It acts as a purgative, increasing both peristalsis and secretion.

**SERPENTARIA RHIZOMA** (\* F.).—*Virginia Snake-root*. (**Aristolochiaceæ**.) The dried rhiz. and rootlets of *Aristolochia Serpentaria* or *A. reticulata*. Loc. South. U. States. Cont. vol. oil, resin, tannin, sugar. Stimul. tonic, with diaphor. and diuretic. properties; used in nerv. depression, atonic dyspep., chron. rheumat., &c.

**SEVUM PRÆPARATUM** (\* F. G.).—*Prepared Suet* (*Sebum G.P.*). (**Ruminantia**.) The internal fat of *Ovis Aries* (sheep) purfd. by

melting and straining. It consists chiefly of stearin, and is used in making plasters and ointments.

**SINAPIS.**—*Mustard*. (**Cruciferæ**.) The mixed seeds of black and white mustard powdered and mixed. Prop. and uses: externally as a counter-irritant (poultice) in myalgia, lumbago, headache; apoplexy, congestion of brain, opium poisoning (to back of neck); catarrh, bronchitis, catarrh. pneumonia, congestn. of lungs, phthisis (to chest). Internally as a condiment, and as an emetic (one tablespfl. in hot aq.).

**SINAPIS ALBÆ SEMINA** (\* R.).—*White Mustard*. The dried ripe seeds of *Brassica alba*, from plants cult. in Britain. Cont. fixed oil, myrosin, sinalbin, &c.; no starch. Sinalbin under the influence of myrosin, which acts as a ferment (enzyme), in contact with aq. splits up into sulphocyanate of acrinyl, sulphate of sinapine (alkal.), and sugar.

**SINAPIS NIGRÆ SEMINA** (\* R. G.).—*Black Mustard*. The dried ripe seeds of *Brassica nigra*, from plants cult. in Britain. Cont. fixed oil, myrosin, sinigrin, &c.; no starch. Sinigrin with myrosin and aq. forms isosulphocyanate of allyl (vol. oil of mustard), bisulphate of potass. and sugar (dextro-glucose).

**STAPHISAGRIA SEMINA** (\* R.).—*Stavesacre*. The dried ripe seeds of *Delphinium Staphisagria*. Loc. Italy, Greece, Asia Minor. Cont. several alkalds., delphinine, staphisagrine, delphinoidine and delphisine; fixd. fat, &c.



Delphinine much resembles aconitine in its action. Chiefly used as ointment to destroy pediculi of man, cattle, &c.

**STRAMONII SEMINA** (\* F. G.).—*Thorn Apple*. (**Atropaceæ**.) The dried ripe seeds of *Datura Stramonium*. Loc. widely distributed in Europe, Asia, America. The active principle is daturine, an alkald. (vide p. 456), isomeric with atropine; it is combined in the seeds with malic acid; fix. oil is also present to the extent of abt. 25%. Chiefly used as an antispasmodic in asthma, either smoked in cigarettes or as inhaltn. of the fumes of the ignited powder.

**STYRAX PRÆPARATUS** (\* F. G.).—*Storax* (*Styrax Liquidus* G.P.). (**Hamamelideæ**, **Balsamifluæ**.) A balsam prepd. from inner bark of *Liquidambar orientalis*. Loc. Asia Minor. Cont. styrol, cinnamic acid, styraein, resin, &c. It is similar in action and uses to balsam of Peru. It is a semi-transprnt. brownish yellow semi-fluid, fragrant and aromatic; it is purifd. by soln. in sprt., filtrtn., and evaprtn.

**SUMBUL RADIX** (\*).—(**Umbell.**, **Orthospermæ**.) Dried transvers. sectns. of root of *Ferula Sumbul*. Imported from Russia and India. Cont. a resin sol. in ether, and a little vol. oil. Chiefly used in hysteria and other nervous diseases of females.

**TABACI FOLIA** (\* F. G.).—*Tobacco*. (**Atropaceæ**.) The dried leaves of *Nicotiana Tabacum* (Virginia tobacco). Loc. America.

Tobacco contns. a vol. liq. alkd. nicotine (vide p. 457) as malate, nicotianin or tobacco camphor, resin, gum, &c. Tobacco stimulat. and then paral. mot. nerv. of invol. muscles and secretory. nerv. of glands, producing paleness, cold sweats, feeble circuln., fainting. It stimulat. then paral. spinal cord, first stimulat. the roots of vagus and its ends in the heart and then paral. the latter, causing high pulse rate. It causes increased peristalsis. It is used as enem. in intussusception, but only rarely on account of its uncertain and **poisonous** action. In tobacco-smoking the effects are due principally to pyridine and collidine, the former is more powerful and preponderates in pipe-smoking; the latter in cigar-smoking, where the access of air is greater. Smoking *in excess* is injurious, causing throat irritation, furred tongue, dyspepsia, and a peculiar rhythm and palpitation of heart, sudden faintness, impaired vision; in moderation is sialagog. Snuff is used as emrhine.

**TAMARINDUS** (\* F. G.).—(**Leguminosæ**). Preservd. pulp of fruit of *Tamarindus indica*, cont. citric, tartaric, and acetic acids, chiefly as K salts; grape sugar, &c. In doses of 1/4 oz. (7 gr.) and upwards it acts as a laxative and refrigerant; it is said to weaken actn. of resinous purgatives, but often given with them.

**TARAXACI RADIX.**—*Dandelion.* (**Compositæ**.) The fresh and dried roots of *Taraxacum officinale* (L. *densleonis*), collected in autumn from indigenous plants. Cont. a bitter

principle, taraxacin, sugar, inulin, &c. Used as a diuretic and for its stimulat. action on the liver.

**TEREBINTHINA CANADENSIS** (\* F.).—*Canada Balsam, Balsam of Fir. (Coniferæ.)* A liq. oleoresin (turpentine) obtained by incising bark of *Pinus balsamea* (*Abies balsamea*). Loc. Canada, U.S. America. Cont. abt. 25% of a vol. oil,  $C_{10}H_{16}$ , resembling oil of turps, and boiling at  $167-170^{\circ}$  C., of sp. gr. .863, and lavo-rotat.; also a dextro-rotat. resin, part sol. 78% in alcohol and part in ether. Used to mount objects for microscope, in prep. of flexible collodion and blistering paper; sometimes given interna. as stimulat. to muc. membranes.

**THUS AMERICANUM** (\* !).—(*Turpentine, U.S.P.*), *Common Frankincense. (Coniferæ.)* The concrete oleoresin (turpentine) scraped from trunks of *Pinus australis* and *P. Tæda*. Loc. South. U.S. America. It consists chiefly of abietic acid. Used chiefly extern. as a slight stimulat.; it is cont. in pitch plaster.

**TRAGACANTHA** (F. G.).—(*Leguminosæ.*) A gummy exudn. from *Astragalus gummifer* and some other spec. of A. Loc. Asia Minor. Consists of arabin sol. in aq., and bassorin, a gum insol. in aq. Chiefly used in form of emulsion to suspend heavy powders, to disguise cod-liver oil; and in making lozenges.

**UVÆ** (F.).—*Raisins. (Vitaceæ.)* The dried ripe fruit of *Vitis vinifera*, the grape-vine. Loc. Spain. The Valencia raisins of Spain

only are used in pharmacy: Muscatel raisins are from Malaga, Sultana raisins from Smyrna. Cont. grape-sugar, and acid potass. tartrate, with gum and malic acid; the seeds cont. a bland fixed oil, both skin and seeds coat. tannin. Used to sweeten preptns., and as stimul. in mental and physical weakness.

**UVA URSI FOLIA** (\* F. G.).—*Bearberry*. (**Ericaceæ.**) Dried leaves of *Arctostaphylos Uva-ursi*, from indigenous plants. Cont. tannic and gallic acids, and a glucoside (a mixture of) arbutin, probably the act. principle. Used as astringent and diuret. in catarrh of bladder and urino-genit. organs.

**VALERIANÆ RHIZOMA** (\* F. G.).—(**Valerianaceæ.**) Dried rhizome and rootlets of *Valeriana officinalis*, collect. in autumn from British plants. Cont. a vol. oil and valerianic acid, malic acid, resin, sugar, &c. Activity chiefly due to the vol. oil. Valerian is used as an anti-spasmodic and stimul. in hysteria, especially in young and delicate women. The oil in large doses paral. brain and spin. cord, lowers blood pressr. and slows pulse.

**VERATRI VIRIDIS RHIZOMA** (\*).—*Green or American Hellebore*. (**Melanthaceæ.**) Dried rhizome and rootlets of *Veratrum viride*. Loc. U.S.A., Canada. Cont. various alkals. jervine, pseudo-jervine, cevadine, and traces of veratrine and rubijervine; also resin, gallic acid, sugar, &c. **Poison.** In small doses, *Veratrum Vir.* lessens strength of pulse, finally

rendering it soft, slow, and compressible; in large doses, the same symptoms occur with increased muscul. weakness, nausea, giddiness, loss of vision, and collapse.

**ZINGIBER (\*F.).—(*Ginger*. (Zingiberaceæ.)** Scraped and dried rhizome of *Zingiber officinale*. Loc. W. Indies, India, &c. Cont. a yell. vol. oil (odour) and a resin (taste). Ginger stimulat. stomach, prod. feeling of warmth, and expels flatus. Used in atonic dyspepsia, with purgatives, to lessen griping, as a masticatory to increase saliva, and for relaxed throat.

---

**Note.**—In the U.S.P. the names of the crude drugs are usually given in the nom. case without indication of the parts of the plant, e.g.: “Valeriana” instead of “*Valerianæ Rhizoma*”; but when necessary, the part of the plant is indicated, as to distinguish between “*Arnice Flores*” and “*Arnice Radix*.”

OFFICIAL INORGANIC SUBSTANCES, SALTS, ACIDS, ALKALIES, &c., ALSO DEFINITE ORGANIC SALTS, ACIDS, ALKALOIDS, &c. (B.P.)

The symbol  $\epsilon$  indicates that statements of solubility vary.

**ACETUM (C.).—Vinegar.** A solution of acetic acid contg. about 5.4% real acid,  $\text{H}_4\text{C}_2\text{O}_2$ , produced from a mash of malted and unmalted grain by the process of acetous fermentation. Contains a little sulphuric acid added for preservative purposes. Sp. gr. 1.017 to 1.019. **Dose.** 1 5 fl. to 1 3 fl., 3 5 to 28 c.c. **Uses:** see Acetic Acid.

Vinegar should give an *alkaline* ash, a *neutral* ash indicates an excess of mineral acid over the alkaline acetates in the vinegar. By adding standard alkali till neutral before evapn. and titrating ash the loss of alkalinity indicates amount of mineral acid. Titration sharp with phenol phthalein.

**ACID. ACETICUM (\*).—Acetic Acid.** An acid liquid contg. 33% real acid,  $\text{H}_4\text{C}_2\text{O}_2$ , produced by destructive distilln. of wood. Sp. gr. 1.044. **Dose,** 15 to 40 m. Action and uses in various strengths: as vesicant; snuffed to lessen drowsiness and prevent syncope; applied to skin for headache and to check perspiration. To check bleeding and as enema to destroy ascarides.

Acetic acid should give no pp. with  $\text{H}_2\text{S}$  (heavy metals), with  $\text{BaCl}_2$  (sulphates), or  $\text{AgNO}_3$  (chloride), (reductn. = tarry matter); nor should the  $\text{H}_2$  evolved on adding Zn and  $\text{HCl}$  to it

blacken lead acetate paper ( $\text{SO}_2$ ). It should yield no residue on evapn.

AC. ACET. DIL. (\*G.).—Sp. gr. 1.006. (conts. 4.27% real acid. Dose, 15 fl. to 15 fl., 3.5 c.c. to 28 c.c.)

AC. ACET. GLAC. (\*F. G.).—Solid or liquid according to temp. Sp. gr. 1.058, increased on addn. of small qty. of water. Practically pure  $\text{H}_4\text{C}_2\text{O}_2$ . All normal acetates are soluble (silver sparingly).

ACID. ARSENIOSUM (\*F. G.).—*Arse-nious Acid*, "*arsenic*," *white arsenic*,  $\text{As}_2\text{O}_3$ . An anhydride, not a true acid, produced by roasting arsenical ores and purg. by sublimati. A heavy white powder sol. in 10 to 12 pts. boilg. w. & sp. sol. in cold aq. sol. in 60 to 140 pts. alcohol &. Readily sol. in liq. ammon. and in alkalis. The vitreous and porcelainous varieties differ in solubility. Volatile at  $205^\circ \text{C}$ . ( $100^\circ \text{F}$ ). **Poison.** Dose, 1/60 to 1/12 gr., .001 to .005 G. Uses: extern. as applic. to cancer; intern. as tonic and astringent to intestines, in dyspep., &c. For headache, ague, neuralg., rheumatism, &c.; bronch. affections, phthisis; skin diseases, &c

ACID. BENZOICUM (\*F. G.).—*Benzoic Acid*,  $\text{HC}_7\text{H}_5\text{O}_2$ . Prepared from benzoïn by sublim. Colourless, flexible, cryst. plates and needles, with odour like benzoïn. Sol. in abt. 500 pts. cold aq., in abt. 25 pts. boilg aq.; in 1 pt. boilg. alcoh., in abt. 2 pts. cold ab. ol. alcoh.; in 25 pts. ether; 1 G. sol. in 20 c.c. alcoh. of sp. gr. .911 at  $60^\circ \text{F}$ . ( $15.5^\circ \text{C}$ ). Sol. in fixed and essent.

oils. Crystises from hot acet. aqd. Sol. in bases to form sol. benzoates of Ca, K, Na, Am, Pb, Ag, Zn, &c. Acid made from urine of herbivora has urinous odour; from toluene, odour of nitro-benzene. **Dose, 10 to 15 gr.,** .65 to 1 G. Prop. and uses: stimul. expectorant., as diuretic. Used for chron. bronchitis, phthisis, catarrh of bladder. Eliminated in urine as hippuric acid.

**ACID. BORICUM** (\* F. G.).—*Boric or Boracic Acid*,  $\text{H}_3\text{BO}_3$ . Prep. from nat. boric acid, also liberatd. from borax by sulphuric acid. Colourless pearly crystals, which may be powdered while moist. Sol. in aq. ( $19^\circ\text{C.}$ ) 25 pts., glycerine 5 pts., rect. sprt. 16 pts. ( $15.5^\circ\text{C.}$ ). Borates, except of alk., insol. **Dose, 5 to 30 gr.,** .3 to 2 G. Resembles Cadm. Iodid. in appearance. Uses: antiseptic ointment, powders, &c.

**ACID. CARBOLICUM** (\* F. G.).—*Phenol, Phenic Acid, Phenic Alcohol, Carbolic Acid*,  $\text{C}_6\text{H}_5\text{HO}$ . Prep. by fractional distilln. of coal-tar oil and subsequent puriftn. Colourless or pink crystals, sp. gr. 1.060 to 1.065 ( $33^\circ\text{C.}$ ). Sol. in 12 to 18 aq., in alcohol, ether, benzene, chlorform, glycern. Salts of alk. and alk. earths soluble. **Dose, 1 to 3 gr.,** .06 to 2 G.

**AC. CARBOL. LIQ. (G.)**—Acid carbol. liquid. by adding 10% aq. **Dose, 1 to 4 m,** .059 to .235 c.c. Uses: as antiseptic, as dressing for wounds (1 in 20 aq.), as gargle or spray in influenza cold (1 in 40 to 1 in 60.). For antisept. purposes should be in aq. soln., not in alcohol, nor oil.



**ACID. CHROMICUM** (F. G.).—*Chronic Acid*,  $\text{CrO}_3$ . An anhydride liberated from potass. bichrom. by sulphuric acid. Crimson needles, deliq., caustic, odourless. Very sol. in aq.; and in cold alc., ether, but slowly decomposes these. Salts mostly insol. except of K, Na, Am, Ca, Sr. (spar.) Uses: deodoriz. and disinfect.; as a caustic.

**ACID. CITRICUM** (\* F. G.).—*Citric Acid*,  $\text{H}_3\text{C}_6\text{H}_5\text{O}_7$ ,  $\text{H}_2\text{O}$ . An acid prepd. from juice of lemon, Citrus Limonum, or lime, Citrus Limetta. Sol. in  $\frac{3}{4}$  pts. cold aq.; sol. in glycer.; insol. in ether. 1 G. sol. in 1 c.c. alc. at  $60^\circ\text{F}$ . ( $15.5^\circ\text{C}$ ). Titrations sharp with phenolphthalein. **Dose, 10 to 30 gr.**, .65 to 2 G.

**ACID. GALLICUM** (\* F.).—*Gallic Acid*,  $\text{H}_6\text{C}_7\text{O}_5$ ,  $\text{H}_2\text{O}$ . An acid prepared from galls. These contain tannic acid, which under the influence of boiling dilute sulphuric acid yields gallic acid. It is a crystalline pale fawn or nearly white powder. Sol. in abt. 100 pts. cold aq.; in 3 pts. boilg. aq.; also sol. in rect. sprt. and rather less sol. in ether. Gallic acid gives no ppte. with soln. of isinglass (gelatin), tannic acid does. It gives bluish black ppte. with ferric chloride, and reduces nitrate of silver on heating; also reduces permanganate. It darkens when in soln. with alkalis. Pyrogallic acid is produced from it by action of heat. **Dose, 2 to 10 gr.**, .13 to .65 G. Prop. and uses: resembles tannic acid, but does not coagulate albumin. Given to check hemorrhages from internal organs.

**ACID. HYDROBROMICUM DILUTUM (\* F.).**

—A 10% soln. of real acid,  $\text{HBr}$ , in water, prepared by the action of  $\text{Br}$  on  $\text{H}_2\text{S}$ . It should contain no sulphuric acid or  $\text{KI}^{\text{I}}$  as in Fothergill's process, and remain colourless on keeping. Sp. gr. 1.077 at  $60^\circ \text{F}$ . ( $15.5^\circ \text{C}$ ). Strength determined by titration. **Dose, 15 to 20 m**, abt. 1 c.c. Prop. and uses: sedative, antispasmod.; given in epilepsy, headache either idiopathic or produced from quinine or tea.

**ACID. HYDROCHLORICUM (\* F. G.).**—A solution of real acid,  $\text{HCl}$ , in water; strength about 32%. Prep. by the interaction of  $\text{NaCl}$  and  $\text{H}_2\text{SO}_4$  and passing the gas into water. Sp. gr. 1.16 at  $60^\circ \text{F}$ . ( $15.5^\circ \text{C}$ ). Gives no ppt. with  $\text{BaCl}_2$  ( $\text{SO}_3$ ) nor  $\text{H}_2\text{S}$  (heavy metals) and no tarnish on copper boiled in it ( $\text{As}$ ). No  $\text{H}_2\text{S}$  evolved on adding  $\text{Zn}$  ( $\text{SO}_2$ ); does not bleach indigo (abs. of free  $\text{Cl}$ ). Strength found by titration.

**AC. HYDROCHLOR. DIL. (\* G.).**—Made by diluting 3060 gr. of  $\text{Ac}$ . Hydrochlor. to 1 pint, or 54l. 8 to 526½, with water. Sp. gr. 1.052. **Dose, 10 to 30 m**, .6 to 1.8 c.c. Uses: as aid to digestion, to allay thirst, dissolve alkaloids, &c.

**ACID. HYDROCYANICUM DILUTUM (\* F.).**

—A 2% soln. of real acid,  $\text{HCN}$ , in water. Prep. by distil.  $\text{K}_4\text{Fe}(\text{CN})_6$  with  $\text{H}_2\text{SO}_4$  (diluted). Sp. gr. .997. Treated with salts of  $\text{Fe}^{\text{II}}$  and  $\text{Fe}^{\text{III}}$  and afterwards with  $\text{KHO}$  a ppt. of Prussian blue is formed. Titration depends upon the fact that the compl.  $\text{Ag}(\text{CN})_2\text{K}$  is soluble. Standard  $\text{AgNO}_3$  is run into the neutralzd. soln.

till this body is formed and excess forms pptc. of  $\text{Ag}(\text{CN})$ . **Dose**, 2 to 8 m., .118 to .472 c.c. **Poison**. Used extern. to lessen itching; intern. to sooth stomach, for vomitg., palpitation from dyspepsia. Scheele's acid is double strength.

**ACID. LACTICUM** (\*F. G.).—A soln. (about 25%) of lactic acid,  $\text{HC}_3\text{H}_5\text{O}_3$ , produc. by lactic ferment from sugar. Sp. gr. 1.21. Miscible with aq., rect. spirt., ether, not chlorfm. Contains no heavy metals,  $\text{SO}_3$ ,  $\text{Ca}$ , sugar. Present in sour milk, buttermilk, beer. It is inactive to polrsd. light. Estimated, by titratn.; by saturatg. with zinc, evapg. and dissolvg. other matters in alcohol and weighing as zinc lactate ( $\times 7402 = \text{lact. acid.}$ ); also estimt'd. by loss of  $\text{CO}_2$  when heatd. with  $\text{H}_2\text{SO}_4$  and  $\text{K}_2\text{Cr}_2\text{O}_7$ , thus  $\text{C}_3\text{H}_6\text{O}_3 + \text{O} = \text{C}_2\text{H}_4\text{O} + \text{H}_2\text{O} + \text{CO}_2$ . Oxalic and tartar. acds. if present give ppts. with lime water (excess), citric with same on boilg. Acetic and butyric acds. by smell; glycerin sepd. from Zn lactate by soln. in alcoh. (vid. supra); sugar by Fehling's test.

**AC. LACT. DIL.**—Acid. lact. dilute 1  $\frac{2}{5}$  fl. 3 to 6i. Sp. gr. 1.040. **Dose**, 1/2 to 2  $\frac{1}{5}$  fl., 1.8 to 7 c.c. **Uses**: to aid digestion, to lessen alkalinity and phos-phc. deposits in urine.

**ACID. MECONICUM**,  $\text{H}_3\text{C}_7\text{HO}_7$ . Micaceous crystals obtained from opium in which it exists in combntn. with alkalds. and partly free. Solble. in water (spargly.); readily in alcohol, less readily in ether. Aq. soln. has acid reactn. Ferric chlorid. gives red colour, not discharged

by boiling, nor by dil.  $\text{HCl}$ ; strong  $\text{HCl}$  discharges it. This is the usual test for preparations of opium in mixtures. The ppt. on adding Tr. Opii to lead lotion is lead meconate.

**ACID NITRICUM** (\* F. G.). — *Aqua fortis*,  $\text{HNO}_3$ . A liquid acid prepared by the action of sulphuric acid upon nitre (K or Na). Sp. gr. 1.42. Should be free from  $\text{Cl}$ ,  $\text{SO}_3$ , Ag, &c. In contact with  $\text{FeSO}_4$  it is reduced to  $\text{NO}$ , which forms a brown compd. with the excess of the ferrous salt (ordinary test). Strength found by titration. All nitrates (except basic) soluble. Nitrate of urea only spar. sol. (test for excess of urea in urine).

**ACID. NITRIC. DIL. (\*)**. Nitric acid diluted 2400 gr. to  $\text{Oj}$ , or  $\frac{3}{5}$  fl. 6 to  $\frac{3}{5}$  fl. 31. **Dose of dil. acid, 10 to 30 m.**, '6 to 1.8 c.c.

Nitric acid is used externally as a caustic; the dilute acid is given internally to allay thirst, in dyspepsia, &c. It has astringent action, and diminishes secretion from lungs. As substit. for mercurials in syphilis; injected to remove stones in bladder. Specif. actn. on liver.

**ACID. NITRO-HYDROCHLORICUM DIL. (\* F.)**. — *Dilute Aqua Regia*. Made by mixing nitric acid  $\frac{3}{5}$  fl. 3, hydrochlor. acid  $\frac{3}{5}$  fl. 4, with  $\frac{3}{5}$  fl. 25 of water. Colourless liquid, of sp. gr. 1.07. **Dose of dil. acid, 5 to 20 m.**, '3 to 1.2 c.c. Specif. actn. on liver. (Given for dyspep., jaundice, certain forms headache, &c.)

**ACID. OLEICUM**. A fluid acid,  $\text{HC}_{18}\text{H}_{33}\text{O}_2$  obtained from olein, a constituent of tallow,

palm oil, lard, and other fats. Insol. in aq., sol. in alcohol., ether, chloroform., petr. sprt. Miscible with fats and essent. oils. Used for preparation of oleates, which ointments are readily absorbed.

#### ACID. PHOSPHORICUM CONCENT. (\* F. G.).

A colourless syrupy acid liquid made by oxidation of phosphorus with nitric acid; also from bones. Cont.  $\text{H}_3\text{PO}_4$  and 33·7 % Aq. Sp. gr. 1·5. Melts to a glass ( $\text{HPO}_3$ ) at red heat.

ACID. PHOSPH. DIL. (\*). A solution contg. 10% of  $\text{P}_2\text{O}_5$  by dilutg. Ac. Phosp. Conc. 3 fl. to 1 pint. Sp. gr. 1·08. Incompat. with most metall. salts. **Dose of dil. acid, 10 to 30 m.** ·6 to 1·8 c.c. Uses as other acids; longer and larger doses can be given without deranging digestn.

Strength of phosph. acid got by evaplg. with  $\text{PbO}$  and noting increase after ignition.

ACID. SALICYLICUM,  $\text{HC}_7\text{H}_5\text{O}_3$  (\* F. G.). A crystne. acid, made synthet., or from oil of winter-green or sweet birch. Sol. in 500 to 700 pts. cold aq.; ether, hot aq. 1 G. sol. in 42 c.c. alcohol. of sp. gr. ·941 at 60° F. (15·5° C.). Melts 155° C. and vol. below 200° C. **Dose, 5 to 30 gr.**, ·3 to 2 G. Prop. and uses: it destroys bacteria, ferments, &c.; it lowers the temp. in fever, causes feeble circultn. and low blood press. Used exter. as antisept. Given intern. (as Na salt) in acut. and chron. rheumtism., headache; makes bile more watery, &c.

**ACID. SULPHURIUM,  $H_2SO_4$  (\* F. G.).**—*Oil of Vitriol (coml.)*. An oily acid made by the vitriol chamb. reactns. Sp. gr. 1·84. The coml. acid made from pyrites contns. As, very little As when made from S. Comml. acid. gives ppt. on dilution ( $PbSO_4$ ). Often purfd. for pharmac. and other purposes by dilutg., and reconstg. clear liquid, but still contns. traces Fe, and other metals. Contns. about 96–97% real acid.

**ACID. SULPH. DIL. (\* G.).**—Acid sulph. 5 fl. 7 dild. to 5 fl. 83½ and lead sulphate settled out. **Dose of ail. acid., 5 to 30 m.,** ·06 to 1·8 c.c. The conc. acid is corrosv. and chars org. matter. Given to quench thirst, to prevent absorption of Pb, to arrest hæmorrhg., lessen sweatg., &c.

**ACID. SULPHUROSUM (\*).** A soln. of sulphurous anhydride,  $SO_2$ , in aq., 5 % strength, made by actn. of C on conc.  $H_2SO_4$ , or by forcing prodts. of combn. of S into aq. Sp. gr. 1·025. Leaves no resid. on evapn. Gives no ppt. with  $BaCl_2$  if quite pure, but usually contns. trace of  $H_2SO_4$ . Titratd. with I soln., but may be titr. by alkali which includes the sulphuric acid;  $MHSO_4$  neutral to litmus and methyl-orange,  $M_2SO_4$  to phen. phthln. **Dose, 1/2 to 1 1/2 fl.,** 1·8 to 3·5 c.c. Prop. and uses: it is a de-oxidiser, and destroys plant life, germs, &c. Used to disinfect rooms; given intern. in some cases of vomiting; extern. in skin diseases.

**ACID. TANNICUM (\* F. G.).** A solid acid, extracted from galls, sometimes called tannin.

Very sol. in aq., glycem., and rect. sprt.; very spar. in ether. Aq. soln. ppt. gelatin and forms black ppt. with per-salts of iron. **Dose**, 2 to 10 gr., .13 to .65 G. Prop. and uses: it coag. albumen and mucus, produces dryness of muc. membr., dryn-s. of feces, lessens. irritn. in throat. Given extern. for intertrigo, impetigo, eczema, ozæna, hæmorrhg. of nose; as a gargle; in inflamn. of tonsils, deafness. Intern. in hæmorrhg., diarrh., albuminuria.

#### ACID. TARTARICUM, $\text{H}_2\text{C}_4\text{H}_4\text{O}_6$ (\* F. G.).—

A crystn. acid prepared from the tartar (KHF) of wine. Five modifs. of this acid exist. The ordinary acid is dextro-rotat. and fuses at  $135^\circ\text{C}$ .; the cryst. have density 1.74–1.76, are sol. in water and alc.oh. Tartrates decomp. when kept in moist state, and solns. of these or the acid decompd. by fungus, but not if carbolic acid present. 1 G. sol. in 1.25 c.c. alc.ohol, sp. gr. .941 at  $60^\circ\text{F}$ . ( $15.5^\circ\text{C}$ .). The acid K-salt very spargly. sol. Tartaric acid prevents pptn. of Fe and some other metals by alkalis. Strength by titratn. with alkali, phen.-phthln. best indicator. **Dose**, 10 to 30 gr., .7 to 2 G. Used for cooling drinks and in prepn. of tartrates.

**ACONITINA.** An alkld. from aconite (see p. 2).

**ÆTHER** (\* F. G.).—*Æther, subp. ether* ( $\text{C}_2\text{H}_5)_2\text{O}$ .

A volat. liquid prepared by etherifetn. of alc.ohol under the dehydrating influence of  $\text{H}_2\text{SO}_4$ , and removal of water by  $\text{CaCl}_2$ . Sp. gr. abt. .735, contns. 92% pure ether by vol., and boils below  $40.5^\circ\text{C}$ . Miscible with alc.oh. and spar. sol. in water. **Dose**, 20 to 60 m, 1 to 3.5 c.c. Prop.

and uses: it stimul. the saliv. glands., stom., respiration; first stimults., then depress. nerv. centres. Less paral. actn. on heart than chloroform., and affects vasomotor centres less; hence it is a safer anaesthetic. Used as anaesthet., carmin., and stimul., and lessens pain in passage of calculi. Used to dissolve pyroxylin, &c. *Aether purus* is prepd. by washing with aq. and distill. from CaO and  $\text{CaCl}_2$ .

**ÆTHER ACETICUS** (\* F. G.).—*Acetate of ethyl*,  $(\text{C}_2\text{H}_5)_2\text{C}_2\text{H}_3\text{O}_2$ . Prepared by dist. together alcohol, sod. acetate, and sulph. acid., and treat. distill. with  $\text{CaCl}_2$ . A fragrant liquid of sp. gr. .900, B.P.  $74\cdot4^\circ\text{C}$ ., miscible with alcohol and ether, sol. in 10 pts. aq. ( $15\cdot5^\circ\text{C}$ .). **Dose**, 20 to 60 m, 1 to  $3\cdot5\text{ c.c}$ . Prop. and uses: best solvt. of cantharidin; anæsth. actn. not used; stimul., carminat. and antispasmodic.

**ALCOHOL AMYLICUM**.—*Fusel oil*,  $\text{C}_5\text{H}_{11}(\text{HO})$ . Slightly impure amylic hydrate separated in the rectificn. of crude spirit. It passes over between  $123^\circ\text{C}$ . and  $127^\circ\text{C}$ .

**ALCOHOL ETHYLICUM** (\* F. G.).—*Ethylic hydrate, absolute alcohol*,  $\text{C}_2\text{H}_5(\text{HO})$ . A liquid of sp. gr. .797 to .800, containing 1 or  $2\frac{1}{2}\%$  of water; it is prepared from rectified spirit by treatment with anhydrous pot. carb., followed by distilln. from  $\text{CaCl}_2$  (fused). *Rectif. Spirit*, sp. gr. .838, contains  $16\frac{1}{2}\%$  of water and *Prf. Spirit*, sp. gr. .920, cont.  $51\frac{1}{2}\%$ . Absolute alcohol of B.P. not sufficiently anhydrous for prepn. of sod. ethylate. Alcohol is prepared by the fermentation of sugar by yeast as a commercial product,



and also by other processes and syntheses. The blueing of  $\text{CuSO}_4$  (B.P. test) shows pres. or absence of aq. in absol. alc.oh.; the  $\text{AgNO}_3$  test pres. or abs. of fusel oil and aldehyde in alc.oh. Its strength is estind. by sp. gr. Prop. and uses: it withdraws water from albumd. solns.; and by forming a compd. with hemo-globin of blood diminishes oxidtn. of tissue. It undergoes combustn in blood. It stimul. circultn. and lowers temp. under ordinary circumstc. If taken *in excess* poisonous; in continued toxic doses the liver and other intern. organs suffer. In med. doses it stimul. gastric juice and aids digestion, especially in weakness or old age. It is used in pharmy. for tinctures, &c. Extensively used as a stimult.

**ALUMEN** (\* F. G.).—*Alum*,  $\text{Al}_2\text{SO}_4$ ,  $\text{K}_2\text{SO}_4$ , 24 Aq or  $\text{Am}_2\text{SO}_4$ , replacing  $\text{K}_2\text{SO}_4$ . A salt prepared by crystg. mixture of sulphate of alumin. and sulp. of potass. or ammon. 1 G. ammon. alum sol. in 760 c.C. alc.oh., sp. gr. .941, at 60° F. (15.5° C.). Sol. in 10 or 11 pts. of water. **Dose, 10 to 20 gr.**, .65 to 1.3 G. Prop. and uses: it ppts. albumen and gelatin, and acts as astringent. and styptic. Used to check bleedg., as applicatn. to ulcers, and a mouth lotion and gargle. As an emetic, also in lead poisng., &c.

**AMMONIA** (\* F. G.).—*Nitricine*, *hartshorn*,  $\text{NH}_3$ . A gas prepared from ammonium salts by treatment with lime. It is extremely soluble in water, and forms Liq. Ammon. and Liq. Ammon. Fortior. Liq. amm. is of sp. gr. .959, contg. 10% of  $\text{NH}_3$ .

Liq. amm. fort. is of sp. gr.  $\cdot 801$ , contg.  $32\cdot 5\%$   $\text{NH}_3$ . Dose of Liq. Amm., 10 to 30 m,  $\cdot 6$  to  $1\cdot 75$  c.c. Prop. and uses It acts as a stimult. to circultn. and respiratn. and nerv. system. Used as a vesicant externally, and general. as stimult. interny. All salts of ammon. and a volatile acid shd. leave no residuo on ignitn. and evolve  $\text{NH}_3$  on boilg. with potash or soda.

**AMMONII BENZOAS** (\* F.).— $(\text{NH}_4)\text{C}_7\text{H}_5\text{O}_2$ . Simil. therap. actn. to benzoic acid. Readily sol. in aq. Dose, 10 to 20 gr.,  $\cdot 65$  to  $1\cdot 3$  G.

**AMMONII BROMIDUM** (\* F. G.).— $\text{NH}_4 \text{Br}$ . Sol. in aq., 1 G. sol. in 3 c.c. alcch. of sp. gr.  $\cdot 941$  at  $60^\circ \text{F}$ . ( $15\cdot 5^\circ \text{C}$ .). Similar actn. to pot. bromide. Dose, 2 to 20 gr.,  $\cdot 13$  to  $\cdot 65$  G.

**AMMONII CARBONAS** (\* F. G.).— $\text{N}_3\text{H}_{11}\text{C}_2\text{O}_3$ . A mixture of acid carbonate of Am. and carbonate of Am. Sol. in aq., 1 G. sol. in 10 c.c. alcch. of sp. gr.  $\cdot 941$  at  $60^\circ \text{F}$ . ( $15\cdot 5^\circ \text{C}$ .). Dose, 3 to 10 gr.,  $\cdot 2$  to  $\cdot 65$  G. Prop. and uses similar to ammonia.

**AMMONII CHLORIDUM** (\* F. G.).—*Sal ammoniac*,  $\text{NH}_4\text{Cl}$ . A crystne. solid or fibrous mass prepared by distilling the ammonia from gas liquor into hydrochloric acid. Soluble in water and rect. spirt., 1 G. sol. in 6 c.c. alcch. of sp. gr.  $\cdot 941$  at  $60^\circ \text{F}$ . ( $15\cdot 5^\circ \text{C}$ ). Dose, 5 to 20 gr.,  $\cdot 3$  to  $1\cdot 3$  G. Prop. and uses: it has a special action on gastric muc. membrs., used in gastric and bronchl. catarrh, given in congestn. and abscess of liver, in rheumtism, neuralgia; as an alterative.

**AMMONII NITRAS** (\*).— $(\text{NH}_4)\text{NO}_3$ . A crystne. salt prepared by neutralg. ammonia or ammon. carb. with nitric acid. Very sol. in water and spar. in rect. sprt. Yields nitrous oxide gas and water at  $185^\circ\text{C}$ ., and used in med. for this purpose only.

**AMMONII PHOSPHAS** (\*).— $(\text{NH}_4)_2\text{HPO}_4$ . A cryst. salt prepared by adding excess of ammonia to phosphoric acid and evapg. Sol. in aq., insol. in rect. sprt. **Dose**, 5 to 20 gr., .3 to 1.3 G. Used in gout.

**AMYL NITRIS** (\* F. G.).— $\text{C}_5\text{H}_{11}\text{NO}_2$ . A yellowish ethereal liquid prepd. by distilg. together amyl alc., sulph. acid., and copper, and collectg. portion boilg. over  $128-132^\circ\text{C}$ . Insol. in aq., miscible with ether, alc., chlorfm.; decompd. on expos. to air. **Dose**, inhaled, 2 to 5 m.,  $118$  to  $294^\circ\text{C}$ .; intern.,  $1/2$  to 1 m.,  $03$  to  $06^\circ\text{C}$ . It forms met.-hæmoglobin with blood, rendering it venous. It quickens. pulse and respirn. and lessens blood pressure. Used as an antidote (pp. 359-371); and in angina pectoris, sea-sickness, epilepsy, &c. **Poison.**

**AMYLUM** (\* F. G.).—*Starch* (see Foods). Used as a soothg. applictn. for chilblns., chapped. hands, and as a vehicle for enemias.

**ANTIMONII OXIDUM** (\*).— $\text{Sb}_2\text{O}_3$ . A greyish-white powdr. prepd. by pourg.  $\text{SbCl}_3$  into water, treatg. the ppd. oxychloride with sod. carb., and dryg. at  $100^\circ\text{C}$ . **Dose**, 1 to 4 gr., .06 to .26 G. Used same purps. as tart. emet. It is an ingrtdnt. of Pulv. Jacobi (James's powd.).

**ANTIMONIUM NIGRUM** (F. G.).— $\text{Sb}_2\text{S}_3$ .

Used as a raw material; not intern.

**ANTIMONIUM NIGRUM PURIF.** (\* F.) is the above purifd. by fusion, and digestn. with ammonia to remove As. A grey-black crystn. powdr. sol. in hydrochlor. acid. with evoln. of  $\text{H}_2\text{S}$ .

**ANTIMONIUM SULPHURATUM** (\* G.).—*Antimony oxy-sulphide*. An orange-red powder consistg. of  $\text{Sb}_2\text{S}_3$  with small varyg. amount of  $\text{Sb}_2\text{O}_3$  prepd. by boiling purifd. black antim. with sulphur and caustic soda and adding slight excess of  $\text{H}_2\text{SO}_4$ . **Dose**, 1 to 5 gr., '06 to '3 G. The oxide is considrd. to be the active part.

**ANTIMONIUM TARTARATUM** (\* F. G.).—*Tartar emetic* ( $\text{KSbC}_4\text{H}_4\text{O}_7$ ) $\text{H}_2\text{O}$ . An oxy-tartrate of antimony and potassium prepd. by dissolvg. oxide of antimony in cream of tartar (in special manner). Colorless, transparent, cryst. blackng. with heat, sol. in water, less sol. in prf. sprt. Adult. or subst.  $\text{K'SbO''}(\text{C}_2\text{O}_4)_2$ , used by dyers as a mordnt. (v. Ph. J.). 1 G. sol. in 4·90 c.c. alcch. of sp. gr. '941 at 60° F. (15·5° C.). This is one of the few compounds of Sb sol. in aq. **Dose** (diaph.), 1/16 to 1/6 gr., '004 to '01 G.; (emet.) 1 to 2 gr., '06 to '12 G. Most used of all antim. preps.

Antimony taken intern. acts a diaphc. and nauseant. It diminishs. blood pressr. and slows pulse which afterwds. becomes quicker; resprtn. is first increasd., then dimmshd. It has direct actu. on spin. cord; paral. motor and sensry. nerves. Contd. use produces fatty degenern.

**AQUA** (\* F. G.).—*Water*,  $\text{H}_2\text{O}$ . A liquid consists of hydrogen and oxygen. Natural water contains various salts and gases. Distilled water contains the gases, but no solids. Water is of sp. gr. 1 (the standard), boils at  $100^\circ \text{C}$ . ( $212^\circ \text{F}$ ). Common water produces ppts. with salts of silver, barium, with oxalates, carbonates, phosphates, &c.

**ARGENTI NITRAS** (\* F. G.).—*Lunar caustic*,  $\text{AgNO}_3$ . Colorless tabular crystals prepared by dissolving metallic silver in nitric acid and crystallising. For cauterising it is used in sticks. Toughened caustic contains 5%  $\text{KNO}_3$ . Sol. in aq., 1 G. sol. in 2.5 c.c. alc. of sp. gr. 941 at  $60^\circ \text{F}$ . ( $15.5^\circ \text{C}$ ), and in rect. sprt.; gives a pp. with common water ( $\text{AgCl}$ ). **Dose**, 1/6 to 1/2 gr., .010 to .032 G. Aq. sol. neutral to litmus.

**ARGENTI OXIDUM** (\*).— $\text{Ag}_2\text{O}$ . An olive-brown powder ppd. from soln. of  $\text{AgNO}_3$  by lime water. Sol. in nitric acid. **Dose**, 1/2 to 2 gr., .032 to .13 G. Silver compounds taken intern. act as astringent and nerve tonics, in sufft. quant. they stain the skin. Nitrate of silver is administered externally to remove parasitic fungi and relieve itching, as an application in herpes, small-pox, erysipelas, ulcers, croup, gonorrhoea, &c. Silver nitrate and oxide should not be mixed with tannin, creasote, &c., because reduction takes place and metallic silver is inert. Metallic silver is obtained in a state of purity by reducing the well-washed chloride in contact with sod. carb. at a red heat.

**ARSENII IODIDUM** (\*).— $\text{AsI}_3$ . Orange crystals, sol. in aq., and rect. sprt., formed by union of iodine and arsenic, or by evapn. of mixture of  $\text{As}_2\text{O}_3$  and hydriodic acid. **Dose**, 1/30 gr., .002 G. Used in skin diseases.

**ATROPINA** (\*).—An alkaloid from *Belladonna* (see pp. 6, 455).

**BERBERINÆ SULPHAS** (F.).— $\text{C}_{36}\text{H}_{12}\text{N}_2\text{O}_6\text{H}_2\text{SO}_4$ . The sulphate of an alkaloid from *Nectandra* or *Bebeeru* bark mixed with sulphate of nectandrine and other alkaloids. Dark brown thin translucent scales sol. in aq., and alcohol. **Dose**, 1 to 10 gr., .06 to .6 G. Used occasionally as substit. for quinine.

**BISMUTHI CARBONAS** (\*).— $(\text{Bi}_2\text{O}_2\text{CO}_3)_2$ ,  $\text{H}_2\text{O}$ . A white powder (basic carbonate) prepared by pptn. with ammon. carb. **Dose**, 5 to 20 gr., .32 to 1.3 G.

**BISMUTHI CITRAS** (\*).— $\text{BiC}_6\text{H}_5\text{O}_7$ . A white powder obtained as a ppte. by mixing sod. carb. and citric acid in soln. to soln. of bism. nitrate. **Dose**, 2 to 5 gr., .13 to .32 G.

**BISMUTHI OXIDUM**.— $\text{Bi}_2\text{O}_3$ . A lemon-yellow powder prepd. by boiling bism. subnitr. with caustic soda, and dryg. at  $100^\circ\text{C}$ . **Dose**, 5 to 15 gr., .32 to .97 G.

**BISMUTHI SUBNITRAS** (\* G.).— $\text{BiONO}_3$ ,  $\text{H}_2\text{O}$ .—A white powder in cryst. scales, prepd. by pouring nitrate of bismuth soln. into excess of aq. **Dose**, 5 to 20 gr., .32 to 1.3 G.

Bismuth preparations should be free from tellurium, as this imparts a fetid odour to the breath.

**BORAX** (\* F. G.).— $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{Aq.}$  A salt found native (as *tincal*) and prepared artif. by mixing boric acid and sod. carb. in equivalent proportions. Efflorescent. Sol. in abt. 35 pts. aq. at  $0^\circ \text{C.}$ , and  $\frac{1}{2}$  pt. at  $100^\circ \text{C.}$  Insol. (or nearly) in alcohol. (rect. spirt.). Has an alkaline reaction, the soda can readily be titrated with acid and meth.-orange. Treated with acid, the hot aq. soln. deposits. crys. of boric acid, and if the soln. contns. sufficnt. alcohol. to burn, the flame is green. **Dose**, 5 to 70 gr., '32 to 4.53 G. Prop. and uses: destroys low vegetbl. organisms. and prevents their growth, and hence antiseptic. Used externally in place of soap, as lotion in acne, to remove scurf from scalp, to allay itching in var. dis.; as an applictn. to muc. membrn. in leucorrh. and gonorrh. and aphthous condns. of throat. To act on uterus in amenorrh., puerprl. fev., &c. Said to bring on abortn. Used in epilepsy; as solvnt. for benzoic acid.

**BROMUM** (\* F. G.). — *Bromine*, Br. A dark brown-red irritatng. liquid, of sp. gr. 2.97 to 3.14 and B.P.  $57.2$  to  $62.8^\circ \text{C.}$ , obtained. from sea-water and saln. springs. Mixed with soda till nearly colorls., it gives no blue tint with cold starch soln. (abs. of iod.). **Poison.** Taken in small doses prod. mental depressn., drowsiness, stupidity; if breathed in presence of insuff. air produc. pneumonia. Not given in free state. Very useful as a reagent in analysis.

**BUTYL-CHLORAL HYDRAS.**—*Croton chloral hydrate* (wrongly called).  $\text{C}_4\text{H}_5\text{Cl}_3\text{O}$ ,  $\text{H}_2\text{O}$ .

Butyl-chloral prod. by action of Cl on aldehyde at  $-10^{\circ}\text{C}$ ., sepd. by fractn. distn. and rendrd. hydrous by adding water. White pearly crystn. scales with pung. smell, acrid taste, melts  $77\cdot8^{\circ}\text{C}$ ., and begins to resolid. at  $71\cdot1^{\circ}\text{C}$ . Sol. in aq. 1 in 50; (1 in 100 *℥*), in glycer. 1 in 1; (1 in 4 *℥*), sol. in alcoh. 1 in 1 *℥*. **Dose**, as hypnot., 5 to 15 gr., 3 to 1 G.: to lessen pain,  $1\frac{1}{2}$  to 5 gr., 1 to 3 G. Prop. and uses; anaesthet., but less poisons. than chloral, and less depressg. to heart. Said to affect 5th nerve first. Used in fac. neuralg., migraine, and paroxysl. toothache. May be given suspended in almond mixture, and with syr. of tolu to disguise odour.

### CAFFEINA (\* F. G.) (See p. 143, 455.)

**CAFFEINÆ CITRAS.**— $\text{C}_8\text{H}_{10}\text{N}_4\text{O}_2$ ,  $\text{H}_3\text{C}_6\text{H}_3\text{O}_7$ . A weak compd. of caffeine and citric acid prepd. by adding citric acid 1 pt. to caffn. 1 pt. and water 2 pts., and evap. to dryness. White powder with bitter taste and acid taste and reactn. A strong soln. ppts. caffeine on dilutn., but ppt. redissol. on furth. dilutn. Gives ppt. with tannic acid, sol. in excess. Red colour if soln. evapd. with pot. chlor. and HCl, purpl. if ammonia add. to residue. **Dose**, 2 to 10 gr., 13 to 65 G. Prop. and uses of caffeine and compds.; in pois. doses produces convulsns. which are preventd. by artif. respirtn. (treatment). It increases respirtn. and blood press. and the saliv. secretn.; it is diuret. (not invariably). Used in headache, cardiac dropsy. Best given with digitalis.



**CALAMINA PREPARATA.**—Calcined native zinc carbonate,  $\text{ZnCO}_3$ , ground and elutriated. Pale pinkish-brown powder. Sol. in acids. Used in prepn. of Unguent. Calum.

**CALCII CARBONAS PRECIPITATA (\* F. G.).**  
—*Precipd. chalk.*  $\text{CaCO}_3$ .  $\text{CaCO}_3$  prepd. by sol. carb. from chloride of calcium. **Dose,** 10 to 60 gr., .65 to 3.9 G. **Prop.** and uses resemb. chalk.

**CALCII CHLORIDUM (\* F.)** — *Chloride of calcium, not Chl. of lime.*  $\text{CaCl}_2$ , 2 Aq. The salt dried at  $400^\circ\text{F}$ . ( $204^\circ\text{C}$ .), sol. in water and alcohol. It is in white deliquescent agglutinated masses. **Dose (children),** 1 to 3 gr., .06 to .19 G.; **adults,** 10 to 20 gr., .65 to 1.3 G. **Used** in chron. enlargmt. of glands, in dehyd. alcohol, ethers, &c., and to dry gases.

**CALCII HYDRAS (F.)**—*Slaked lime,  $\text{Ca}(\text{HO})_2$ .* Hydrate of lime prepared by pouring water over recently burnt lime. It is sol. in cold water, less sol. in hot. Sol. in 650 pts. aq. at  $0^\circ\text{C}$ ., sol. in 778 pts. aq. at  $15.5^\circ\text{C}$ ., in 972 pts. aq. at  $54.4^\circ\text{C}$ ., in 1270 pts. aq. at  $100^\circ\text{C}$ . More sol. in water contg. sugar. Lime should be kept in a well-closed bottle, or it absorbs  $\text{CO}_2$  from the air. **Prop.** and uses: it is an alkal. earth; slightly astring. actn. on skin and used for cracked and eczemat. surfs., as an injectn. in dischrgs. from mucous passages. As an antacid and to prevent vomitg. and check diarrhœa.

**CALCII HYPOPHOSPHIS** (\* F.).— $\text{Ca}(\text{PH}_2\text{O}_2)_2$ . Prepared by boiling slaked lime with phosphorus, ppg. uncombd. lime by  $\text{CO}_2$ , evapg. and crystllg. A white salt of pearly lustre and bitter naus. taste. Insol. in rect. spirt., sol. in 6 pts. cold aq. The salts burn on ignition, leaving 80 % of residue. **Dose, 5 to 10 gr.,** .32 to .65 G. Prop. and uses: given in early stages of phthisis and in nervous debility from overwork, &c. Begin with 2 gr. and increase.

**CALCII PHOSPHAS** (\* F. G.).— $\text{Ca}_3\text{P}_2\text{O}_8$ . A white substance, prepd. by ppu. with  $\text{AmHO}$  from a soln. of bone ash in hydrochlor. acid; it is generally basic. It dissolves in minrl. acids and is not ppd. on addn. of acetates, but the  $\text{CaO}$  is ppd. from the acetic soln. by oxalic acid; the  $\text{P}_2\text{O}_3$  by addn. of Ferri Perchlor.

**CALCII SULPHAS** (G.).— $\text{CaSO}_4$ . *Plaster of Paris.* Nearly anhydrous sulphate of lime, made by igniting gypsum ( $\text{CaSO}_4 \cdot 2\text{Aq.}$ ). Used in prepa. of  $\text{Calx Sulphurata}$ . Slightly sol. in water; soln. used as a reagent in laboratory.

**CALIX** (\* F. G.).— $\text{CaO}$ . Quicklime prepared by calcining limestone *in presence of carbon*. Forms  $\text{CaH}_2\text{O}_2$  when moistd. with rather less than equal wt. of aq.

**CALX CHLORINATA** (\* F. G.).—*Chloride of lime, Bleaching powder*,  $\text{CaOCl}_2$ . Obtained by causing moist quicklime to absorb  $\text{Cl}$  gas. Dull white powd. with faint smell of  $\text{Cl}$ . Is part. dissol. in aq. formg. soln. of calcium hypo-

chlorite. When mixed with acid the soln. bleaches. It also liberates I ( $= 33\frac{0}{100}$  avail. chlorine) which may be titrated with  $\text{Na}_2\text{S}_2\text{O}_3$ .

**CALX SULPHURATA (\*).**—*Sulphurated lime.* Made by reducing  $\text{CaSO}_4$  with C at a red heat and should contain  $50\frac{0}{100}$  CaS. Spar. sol. in aq. (cold), decomposed by boilg. aq. formg.  $\text{Ca}(\text{HO})_2$  and  $\text{Ca}(\text{HS})_2$  wh. dissolve. **Dose, 1, 10 to 1 gr., .606 to .06 (†).** Used in suppuration., to check inflammation, and to hasten dischrg. of pus.

**CARBO ANIMALIS (\* F.).**—*Animal Charcoal, Char.* The residue from the coking of bones. It contains about 10 to  $14\frac{0}{100}$  C., the rest principally  $\text{Ca}_3\text{P}_2\text{O}_8$ , with  $\text{CaCO}_3$ ,  $\text{CaF}_2$  and small impurities.

**CARB. ANIM. PURIF.** is prepd. by extractg. the earthy matter with HCl. Both black powders which remove colorg. matter from solns. in sugar refining, &c.). Insol. in all reagents, C. A. Purf. burns leaving not more than  $2\frac{0}{100}$  ash. **Dose, 20 to 60 gr., 1.3 to 4 (†).** Used to absorb alkalds. in poisng. (to be followed by emetic, &c.).

**CERI OXALAS (\*).**—*Cerous oxalate,  $\text{CeC}_2\text{O}_4$ ,* 3 Aq. Ppd. oxalate of Ce (with La, Di), a white granular powd. which leaves cerosceric oxide (red-brown) on ignitu. Sol. in minerl. acids, insol. in oxalic and in aq. Mixed with KHO and treat. with Cl it yields yellow cerosceric hydrate. **Dose, 1 to 2 gr., .06 to .13 G.** Used to prevent vomitg. in pregncy., in bronchitis and dyspnœa and some nerv. affectns.

**CHLORAL HYDRAS** (\* F. G.).— $\text{C}_2\text{HCl}_3\text{O}, \text{H}_2\text{O}$ . Colorlss. cryst., prod. by actn. of Cl on absolute alcohol and subsequent hydrate. Fuses  $120^\circ \text{F}$ . ( $48.9^\circ \text{C}$ .), boils  $202\text{--}206^\circ \text{F}$ . ( $94.4$  to  $96.7^\circ \text{C}$ ). Sol. in less than 1 pt. aq.; rect. sprt. or ether; in 4 pts. chlorfm. Yields chlorofm. on distilln. with  $\text{CaH}_2\text{O}_2$  and other alkalis. **Dose**, 5 to 30 gr., .32 to 1.94  $\bar{\text{g}}$ . Prop. and uses: prob. not decompd. in the body. Acts on vasomotor centre, thus paralysing blood-vess. and heart; on spinal cord diminishg. and removing excitability; on brain as hypnotic; contracts pupil. Used chiefly to promote sleep, to lessen reflex action and convulsus., to give relief from dyspnœa in spasms, asthma. As an anæsthetic to remove pain; in sea-sickness, incontinence of urine in children. As an antidote to strychnine.

**CHLOROFORM** (\* F. G.).— $\text{CHCl}_3$ . Colorlss. limpd. liqd. of etherl. odour and sweet taste, sp. gr. 1.497, B.P.  $61^\circ \text{C}$ ., prepd. by distll. alcohol with chloride of lime and slaked lime. Dissol. in 200 vols. aq. and readily in alcob., ether. **Dose**, 3 to 10 m. Prop. and uses: In small doses it stimul. saliva and gastric juice and movements of bowels, relieving gripings. Much used, mixed with plenty of air, as anæsthet. with stages as follows: noises heard, and light seen in eyes, oppression of chest, excitement, violent, hysterical, venereal, &c., then partial, passing to complete anæsthesia with respiratu., pulse, and heart (first slow, then quick, lastly) steady with blood pressr. lowrd. Vapour used in

photophobia, pruritus pudendi, neuralgia, ulceration and cancer of uterus, &c. Used in vomiting, coughs, affections of stomach, intestus., &c. To prod. part. anesthes. in labour, colic, &c.

**CINCHONIDINÆ SULPHAS** (\*).— $(C_{20}H_{24}N_2O)_2, H_2SO_4, 3H_2O$ . Colorless silky crystals. sol. in aq., alcob., ether; very spar. in chlorin. and soln. of  $AmHO$ , sol. in acids. **Dose**, 1 to 10 gr., .06 to .65 (i. Uses: as a tonic and antiperiodic. See Cinchona Alkaloids.

**COCAINÆ HYDROCHLORAS**.— $C_{17}H_{21}NO_4, HCl$ . The hydrochlorate of an alkld. which is the chief act. prin. of Coca q.v. **Dose**, 1/5 to 1 gr., .013 to .069.

**CODEINE** (\* F.G.).— $C_{18}H_{21}NO_3, H_2O$ . See Opium Alkaloids. **Dose**, 1/4 to 2 gr., .016 to .13 G. Hypnotic, lessens irritblty. of nerves of intestus., &c.; lessens sugar in diabetes.

**CUPRI NITRAS**,  $Cu(NO_3)_2, 3Aq$ . Blue deliq. cryst. forming a 6 aq. salt with more water.

**CUPRI SULPHAS**,  $CuSO_4, 5Aq$ . Blue cryst. sol. in aq., becoming anhydrous at  $400^{\circ} F$ . **Dose** (astringent), 1/4 to 2 gr., .016 to .13 (i.; emetic, 5 to 10 gr., .32 to .65 G. Astringent, and nerve tonic; as a gargle and wash in ophthalm., gonorrh., leucorrh. In diarrh., dysen., chorea, hysteria, epilepsy, &c. Nitrate same action.

**FERRI ET AMMONII CITRAS** (\* F.).—Scale compd. **Dose**, 5 to 10 gr., .32 to .65 G.

FERRI ET QUININÆ CITRAS (\*).—Sealo compd. Dose, 5 to 10 gr., '32 to '65 G.

FERRI PEROXIDUM HYDRATUM (\*).— $\text{Fe}_2\text{O}_3 \cdot \text{H}_2\text{O}$ . Precipitated hydrate of iron dried at  $100^\circ \text{C}$ . ( $212^\circ \text{F}$ .) (10% aq. about). Red-brown powd. insol. in aq., sol. in dil.  $\text{HCl}$ . Dose, 5 to 30 gr., '32 to '2 G.

FERRI PHOSPHAS (\*).—*Ferrous phosphate*,  $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ . Slate-blue powd. contg. 47% of ferrous phosphates, ppd. from ferrous sulphat. by sol. phosp. and carbonate, and dried at  $120^\circ \text{F}$ . ( $49^\circ \text{C}$ .) Dose, 5 to 10 gr., '32 to '65 G.

FERRI SULPHAS (\* F. G.).— $\text{FeSO}_4 \cdot 7\text{Aq}$ . Green cryst. prepd. by dissol. iron in  $\text{H}_2\text{SO}_4$ , or as a by-product in manufacturing. Dose, 1 to 5 gr., '06 to '32 G. Ferri Sulph. Exsicc.,  $\text{FeSO}_4$ , Aq, remains after drying at  $100^\circ \text{C}$ . ( $212^\circ \text{F}$ ).

FERRUM REDACTUM (\* F. G.).—Dried ferric hydrate partially red. to metal by hydrogen at red heat. Dose, 1 to 5 gr., '06 to '32 G.

General action of iron salts.— $\text{Fe}''$  is estind. in soln. by titratn. with pot. bichrom. with pot. ferricyanide as indicator. Iron has an astring. and irritat. actn. on stom. and intestns. Used to stop bleeding, in anæmia, chlorosis, scrofula, &c. (increases corpuscles and amount of iron in blood). Used intern. to diminish discharges in chronic diarrhœa and dysentery, leucorrh., in

hematuria, cardiac and renal dropsy. Iron salts form inky mixtures when tannin is present, e.g. Mist. Ferri Arom.

**GLYCERINUM** (\* F. G.).— $\text{C}_3\text{H}_5(\text{HO})_3$ . A trihydric alcohol obtained. by saponifying fats; a colorlss. sweet, oily liquid sol. in aq. and alcohol. Of sp. gr. 1.25 (B.P.). It prevents the pptn. of many metals by alkalis. **Dose**, 1 to 2 3, 3 to 7 c.Ĉ. Used as a laxative and emollient and solvent of other drugs.

**HYDRARGYRI IODIDUM RUBRUM** (\* F. G.).—*Biniolide, red iodide*, of Hg.  $\text{HgI}_2$ . Pptd. by KI from the perchloride, washed, and dried at  $100^\circ\text{C}$ . ( $212^\circ\text{F}$ ). A red powder becoming yell. when gently heated, very spar. sol. in aq., spar. in alcohol, freely in ether, volat. below redness. **Dose**, 1/32 to 1/8 gr., .002 to .008 G.

**HYDRARGYRI OXIDUM FLAVUM ET RUBRUM** (\* F. G.).— $\text{HgO}$ . *Yell. oxide* of mercury ppd. from the perchlor. by caustic soda and dried at  $100^\circ\text{C}$ . ( $212^\circ\text{F}$ ). *Red oxide* by triturtug. nitrate of Hg" with Hg and heating, till acid ceases to come off. Both sol. in  $\text{HCl}$ , formg.  $\text{HgCl}_2$ .

**HYDRARGYRI PERCHLORIDUM** (\* F. G.).—*Corrosive sublimate*.  $\text{HgCl}_2$ . Prep'd. by submittng. a mixt. of persulpht. of Hg and chloride of sol. to sublimtn. Heavy white crystals. wh. melt  $265^\circ\text{C}$ , boil  $295^\circ\text{C}$ , vol. at ordinary temps. Sol. in aq., alcohol., and ether; 100 pts. aq. dissolv.  $5\frac{3}{4}$  pts. at  $0^\circ\text{C}$ ,  $6\frac{1}{2}$  pts. at  $10^\circ\text{C}$ . and

59 pts. at  $100^{\circ}\text{C}$ . It requires  $2\frac{1}{2}$  pts. alc. at ordinary temp., and rather more (less?) ether. Sp. gr. 5.42; vap. dens. 5.4. The salt vol. from its boilg. alc. or etherl. solns. Taste acid and metall. **Poison.** Dose,  $1/16$  to  $1/8$  gr., .004 to .008 G.

### HYDRARGYRI PERSULPHAS (F.).— $\text{HgSO}_4$ .

A heavy white powd. prepd. by dissolving Hg, 20 oz., in sulph. acid. 12 $\frac{2}{3}$ , and evapg. till dry. Sharp saline metall. taste. Melts above red heat and vol. with partial decomposition.

### HYDRARGYRI SUBCHLORIDUM (\* F. G.).

—*Calomel*,  $\text{HgCl}$ . A white heavy powder, almost tasteless, prepd. by submittg. a mixt. of persulph. of Hg, metall. Hg, and chlrd. of sod. to sublimtn. and washing the *powder* to remove  $\text{HgCl}_2$ . Vol. below red ht. without fusion, non-vol. at ordinary temps. Insol. in aq., alc., ether.  $\text{HgCl}$  is ppd. on addg. a chloride to mercurous salt ( $\text{Hg}'$ ). Dose,  $1/2$  to 5 gr., .03 to .32 G.

### HYDRARGYRUM AMMONIATUM (\* G.).—

*White precipitate*,  $\text{NH}_2\text{HgCl}$ . A white powder, ppd. from soln. of  $\text{HgCl}_2$  by  $\text{AmHO}$ . Not acted upon by alc., and ether, slightly by aq.; vol. without fusi. below redness.

### HYDRARGYRUM (\* F.).—*Quicksilver*, Hg.

Mercury, is a brilliant white metal of sp. gr. 13.5. Fuses ab.  $-40^{\circ}\text{C}$ ., B.P.  $349^{\circ}\text{C}$ ., slight. vol. at ordinary temps. Sol. in  $\text{HNO}_3$ , boilg.  $\text{H}_2\text{SO}_4$ , Cl water, insol. in  $\text{HCl}$ , hot or cold. Purfd. by contact with cold conc.  $\text{H}_2\text{SO}_4$ , or with nitrate



of Hg. Prop. and uses of Hg and its compds.: metal sometimes given in quant. to remove obstructns. in intestns. Appld. to skin or lungs as vap., or as (Hg') salts to skin it is absorbed. Prod. salivtn. with fever symp., then tremors and paralysis, brain affectns. Stimulnts. upper small intstns. and removes bile, disinfects cont. of intestns. Acts as alteratv., and causes breakg. up of syphil. and other deposits and adhesns.

**HYDRARGYRUM CUM CRETA** (\*).—Mercury 1 pt., prepd. chalk 2 pts., rubbed together. Dose, 3 to 8 gr., .19 to .52 G.

**IODIFORM** (\* F. G.).— $\text{CHI}_3$ . Shing. yell. cryste. scales slight. sol. in aq., spar. in rect. spirt., sol. in ether and chlorfm.; solns. neutral.: smell very charactrstc. Ppd. by action of I on alcch. mixd. with pot. carb. Melts when warmed, vol. on ignitn. Dose, 1/2 to 3 gr., .03 to .19 G. Antisept. and deodoriz., local anæsthetic. Weakens circultn.; and acts on nerv. systm. prodg. narcosis, on brain prodg. insomnia, headache, mania, melancholia, &c. Prevents formtn. of giant cells. Used in dressg. wounds, chancres, sores, &c., to lessen smell in ozæna, &c.

**IODUM** (\* F. G.).—I. Dark scales with metall. lustr. liberatd. from kelp salts and other salts contg. it. Fuses at  $107^\circ \text{C}$ . ( $225^\circ \text{F}$ .), boils  $175^\circ \text{C}$ . ( $347^\circ \text{F}$ .), with violet vaprs. Spar. sol. in aq., 1 pt. in 7000, freely in water contg. iodides or  $\text{AmNO}_3$ ,  $\text{AmCl}$ ; sol. in alcch., ether with brown, in  $\text{CS}_2$  with viol. colr. Free I strikes blue colr. with starch soln. Estimtd. by titr. with

$\text{Na}_2\text{S}_2\text{O}_3$  and starch indictr. Dose of tinct., 5 to 20 m. Acts as rubefacient. and genrl. sialag., as alteratv. Causes absorptn. of enlarg. glands; and poisoning. (iodism) in excess. Aphrodis. in small doses, powerfly. anaphrodis. in larger doses. Applied to skin to destroy parasit. and fungi, to cause absorp. of tumors, serum, &c., to remove consolidtn. of lung; in ozæna, bronchit., phthis., &c. Rarely given internally.

**LITHII CARBONAS** (\* F. G.).— $\text{Li}_2\text{CO}_3$ . White grains or powder spar. sol. in aq. (150 pts. cold aq.), insol. in alcohol. Dissolv. with efferv. in  $\text{HCl}$ , formg. chloride wh. colrs. flame red, and gives ppt. with sod. phosphate. Dose, 3 to 6 gr., .19 to .39 G.

**LITHII CITRAS** (\* F.).— $\text{Li}_3\text{C}_6\text{H}_3\text{O}_7$ , 4 Aq. White crys. sol. in aq., leavg. carbt. mixd. with C on ignitn. Ppd. by dissol. the carbt., 5 pts., in citric acid, 9 pts. Dose, 5 to 10 gr., .32 to .65 G.

**LITHIUM**.—Li is the alkali metal of lowest at. wt. (9); compds. more poisons. than Na and K compds. Urate of Li very sol. therefr. givn. in gout, gravel, &c., and to prevnt. acid in urine.

**MAGNESIA LEVIS** et POND. (\* F. G.).— $\text{MgO}$ . White powdrs. made by ignitn. of correspd. carbtts. Volume per equal wt.  $3\frac{1}{2}$  to 1. Dose, 10 to 60 gr., .65 to 3.9 G.

**MAGNESII CARBONAS LEVIS** et POND. (\* F. G.).— $(\text{MgCO}_3)_3$ ,  $\text{Mg}(\text{HO})_2$ , 4 Aq. White

powders, *lev.* made by ppg. from sulph. with cold sod. carb. soln.; *poud.* in the same way, but hot, followed by evap. and digestn. of resid.; washed in both cases, and dried at 100° C. (212° F.). **Dose, 10 to 60 gr., .65 to 3.9 G.**

**MAGNESII SULPHAS (\* G.).—Epsom salts.**  $Mg_2SO_4$ , 7 Aq. Colorls. crys. with bitter taste, obtained from dolomite and other sources. The principle. activ. ingred. of bitter purg waters. 100 pts. aq. dissol. 25.7 pts. of anhyd. mag. sulph. at 0° C.; hyd. crys. sol. in  $\frac{1}{3}$  pt. aq. at 20° C. **Dose, 60 gr. to 1 oz., 4 to 28 G.**

**MAGNESIUM.**—Mg is an alkaline earth metal, with propts. between earth and alk. earth metals. Comps. used as antacid and laxtv. in gout, and to make urine alkala.

**MANGANESII OXIDUM NIGRUM (\* F.).—** $MnO_2$ . More or less impure black oxide of Mn ( $MnO_2$ ), sol. in hydrochl. acid with evoltn. of Cl gas. Principal use: preparation of Cl.

**MARMOR ALBUM (F.).—** $CaCO_3$ . Native marble, sol. in hydrochl. acid with evoln. of  $CO_2$  gas. Principal use: preparation of  $CO_2$ .

**MENTHOL.**— $C_{10}H_{19}(HO)$ . A camphor deposit. on coolg. the vol. oil from *Mentha arvensis*, D.C., and *M. piperita* (American). Melts 41°-43°, C. and vol. at 100° C. **Dose 1/2 to 2 gr., .03 to .13 G.** Antispasmodic and rubefacient. Adulterants: spermaceti, paraff. wax, salicin, salicylic acid, thymol, &c.

**MORPHINÆ ACETAS** (\* G.).— $C_{17}H_{19}NO_3$ ,  $HC_2H_3O_2$ ,  $3H_2O$ . White powd. sol. in aq. (24 pts.), and sprt. **Dose**, 1/8 to 1/2 gr., .008 to .032 G.

**MORPHINÆ HYDROCHLORAS** (\* F. G.).— $C_{17}H_{19}NO_3$ ,  $HCl$ ,  $3H_2O$ . White powd. or silky prisms, sol. in aq. (24 pts.), and sprt. **Dose**, 1/8 to 1/2 gr., .008 to .032 G.

**MORPHINÆ SULPHAS** (\* F. G.).— $(C_{17}H_{19}NO_3)_2$ ,  $H_2SO_4$ ,  $5H_2O$ . Colorless, silky needles, sol. in aq. (24 pts.), and sprt. **Dose**, 1/8 to 1/2 gr., .008 to .032 G.

**MORPHINA** (\* F.).—The salts are pprd. by adding the acid to the alkald. Arrests oxidatn. in blood; irrit., afterwds. deprss., spin. cord; hypnotic, anodyne, myotic, lessens exctmnt. of resprtry. centr.; antisialc.; local and genrl. sedativ. (intestns., larynx, &c.); antidote, p. 359. Used as emet., expectorant, &c., vide Opium.

**OLEA**.—See Notes on Mat. Med. organic portn.

**OS USTUM** (G.).—*Bone Ash*.  $Ca_3P_2O_8$  with  $CaCO_3$  (10% abt.),  $CaF_2$ ,  $Mg_2P_2O_8$ , &c., in smaller quant.

**PARAFFINUM DUR. ET MOLL.** (F. G.).—*Paraff. Wax* (dur.) is white solid, without taste or smell, seprted. from shale oil by refrigtn.; also from petrolm. (some), wood and coal tar, &c. Consts. of C abt. 85%, H abt. 15%, and is princip. higher paraffins.  $C_nH_{2n+2}$ . Melts ( $32^\circ$ – $80^\circ$  C. Allen),  $43^\circ$ – $3^\circ$ – $62^\circ$ – $8^\circ$  C. (B.P.). Sp.gr. .82 to .94, Paraff. dur. of M.P.  $77^\circ$  C. resemb. beeswax,

but fractr. not conchoidl. Insol. in aq. hot or cold, insol. in rect. sprt. and cold absol. alcob., sol. in boilg. absol. alcob., sol. in ether, petr. sprt., shale naphth., kerosene, benzene, essent. oils, warm fat oils. Oxid. by  $\text{HMnO}_4$ ,  $\text{HNO}_3$ ; hot paraff. fused with S gives  $\text{H}_2\text{S}$ ,  $\text{C}_1$  &c.

**PARAFF. MOLL.** (\* F. G.).—The less sol. portns. of petrol. after remov. of *Paraff.* *Dur.* It is colorlss. or pl. yell. fluoreset. semi-solid, free from taste and smell. Consists princip. of iso-paraff.  $\text{C}_{16}\text{H}_{34}$  to  $\text{C}_{20}\text{H}_{42}$  with notable prop. of olefins (Allen). Sp. gr. ( $\cdot 803$ – $\cdot 805$  at  $100^\circ \text{C}$ ., aq. at  $15^\circ \text{C}$ . = 1)  $\cdot 84$ – $\cdot 87$  at M.P. (B.P.); M.P. ( $40^\circ$ – $50^\circ \text{C}$ . Allen), ( $35^\circ$ – $45^\circ$  or higher, B.P.) Insol. in aq; 92 % alcohol dissolv. 2 % of Germ. vaselln. Amer. vaselln. dissolv. freely in warm ether to liqd. with blue fluorsnc., clear or turbid on coolg.; Germ. vas. to thick soln. depositeg. on coolg.; Russian to clear soln. turbid on coolg. Sol. in chlorfm., benzol (B.P.). Not alterd. by boilg.  $\text{H}_2\text{SO}_4$  (sp. gr. 1.60) nor boilg.  $\text{HNO}_3$  (sp. gr. 1.18), oxid. by fung.  $\text{HNO}_3$  and by  $\text{H}_2\text{SO}_4$  (sp. gr. 1.82). Not saponifd. by alkali, shd. be neutrl. in alcob. soln. Better if not refined. with acids, and shd. not contain fat oils. Synon.: ozokerine, fossiline, chrysine, cosmoline, sioxoline, geoline, petrolina, vaseline, petroleum jelly.

*Paraff.* *Dur.* and *P. Moll.* do not become rancid, and are used as subst. for fats in prepu. of ointments where absorp'tn. by skin not required.

**PHOSPHORUS** (\* F. G.).—A non-metall. colorlss., or yellowsh. wax-like solid of sp. gr.

**1.77, M.P.**— $43.3^{\circ}$  C. ( $110^{\circ}$  F.). Very inflammable, and shd. be handled with caution. Burns in air to  $P_2O_5$ . Insol. in aq.; slightly sol. in ether, but more so in benzene, turp. oil, oils essent. and fixed; freely sol. in chloride of sulphur,  $PCl_3$ ,  $CS_2$ . Kept under water. Inflames in contact with lod. Red phosph. is an isomorphous modification, reconvertd. into ordinary phosph. at  $260^{\circ}$  C., insol. in usual solvts. of phosph. Both forms oxid. by  $HNO_3$  give phosphoric acid. **Dose, 1/100 to 1/20 gr.** Prop. and uses: acts upon bones, increasing their density, causes caries of lower jaw. Destroys glycogenic functions of liver, and causes fatty degeneration of liver, kidneys, &c. **Poison.** Used in nerv. debility, neuralg., paralysis, impotence, locomotor ataxia, leucocythæmia, osteomalacia, skin diseases.

**PHYSOSTIGMINA (F.).**— $C_{13}H_{21}N_3O_2$ . **Syn.** Eserine. Colorless or pinkish crystals, obtained from Calabar bean by dissol. the alcohol. extract with aq., addg. sod. bicarb., shaking with ether, and evaporatg. Highly sol. in aq., sol. in alcohol, and dil. acids. For prop. see Notes on Mater. Med. **Organic. Poison.**

**PILLOCARPINÆ NITRAS (F.).**— $C_{11}H_{16}N_2O_2$ ,  $HNO_3$ . Nitrate of an alkaloid, pilocarpine, from Jaborandi. White crystals, powder, or acicular crystals, in 8 or 9 pts. aq., sparingly sol. in cold, freely in hot rect. spirit. **Dose, 1/20 to 1/2 gr., .003 to .03 (i.** Prop. and uses: **poison** (antidote is atropine). Pilocarpine stim. effluent. nerves. of glands, stim. and afterwds. paral. effluent. nerves.

of involunt. muscl.; increases secretns. of sweat, saliva, tears, ear-wax, mucus, intest. juice, urine, milk. Produces contractn. of pupil, increased peristalsis, depress. cardiac muscl.; causes strangury and retentn. of urine, contractn. of uterus and spleen, nausea, and vomiting. Uses: diseases of eye, skin (prurigo, chron. urticaria, baldness), kidneys, throat (tonsillitis, diphtheria), chest, &c. Chiefly used in dropsy and anemia from disease of kidneys.

**PLUMBI ACETAS** (\* F. G.).—*Sugar of Lead*,  $\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2$ , 3 Aq. White crys. masses, prepd. by dissol. lead oxide in acetic acid and evapg. the (slightly acid) soln. Taste sweet and astringent, odour acetous. Gives pp. of  $\text{PbI}_2$  with KI. Dose, 1 to 4 gr., '06 to '26 G.

**PLUMBI CARBONAS** (\* F. G.).—*White Lead*. Heavy white powd., prod. by actn. of  $\text{CO}_2$  on lead in presence of small quant. of acetic acid.

**PLUMBI IODIDUM** (\* F. G.).— $\text{PbI}_2$ . Yellow crys. ppt. obtained by mixing solns. of lead acct. and pot. iod.; sol in hot aq., insol. in cold.

**PLUMBI NITRAS** (\* F.).— $\text{Pb}(\text{NO}_3)_2$ . Heavy colrls. crys., prep. by action of  $\text{HNO}_3$  on lead, lead oxide, &c.; sweetish taste; sol. in aq. and alcohol.

**PLUMBI OXIDUM** (\* F. G.).—*Litharge*,  $\text{PbO}$ . Heavy reddish-yell. scales, prod. by roasting metall. lead.

Lead is a powerful **poison**, with symp.:—colic, cramps, paral., wrist-drop, blue line on gums.

Lead poisoning occurs readily in gouty persons. Used princip. extern. in pruritus, eczema, otorrh., vulvitis, gonorrh., leucorrh., &c. Intern. as astring. in diarrh., &c., and to check intern. bleeding.

**POTASSA CAUSTICA** (\* F. G.). — *Caustic Potash, Potassium Hydrate or Hydroxide*,  $\text{KHO}$ . A white solid, obtained by boiling a soln. of pot. carb. with slaked lime, evap. and fusing. A powerful caustic.

**POTASSA SULPHURATA** (\* F. G.). — *Sulphurated Potash*. A mixture of potass. salts, of which the chief is sulphide, obtained by fusing pot. carb. with sulphur. Solid greenish fragments, with alkaline and acrid taste, forming a yell. aq. soln., which gives off  $\text{H}_2\text{S}$  on treat. with dil. acids. Rect. sprt. diss. abt. 50% carb. and sulphur, being insol. **Dose, 2 to 10 gr.**, .13 to .65 G. Prop. and uses: laxat.; stim. resp. muc. memb. and sweat-glands. Used extern. in place of sulph. ointment in scabies, acne, as injectn. for ascarides, as bath for rheumatism. Intern. asiaphritic. in albuminuria, chron. bronchitis, whoop, cough, croup, &c.

**POTASSII ACETAS** (\* F. G.). —  $\text{KC}_2\text{H}_3\text{O}_2$ . White foliac. satiny masses, prepd. by dissol. pot. carb. in acet. acid, evapg., and fusing. Action with indic. in titration: limus and phen.-acet. low results, ph.-phthn. good, merc. org. and rosol. acid useless. Deliq., sol. in rect. sprt. **Dose, 10 to 60 gr.**, .65 to 4 G. Prop. and uses: diuretic and indirect antacid, purgativ. in large doses (120 grms. and up.).



# POTASSII BICARBONAS (\* F. G.).—*Acid*

*Carb. of Potash,  $\text{KHCO}_3$ .* Colorless. crys., non-deliq., prepd. by saturatng. pot. carb. with  $\text{CO}_2$ . Dose, 10 to 40 gr., .65 to 2.6 G. Uses: extern. to relieve itching, intern. as antacid and for deposit in urine.

# POTASSII BICHROMAS (\* F. G.).—*Red*

*Chromate,  $\text{K}_2\text{Cr}_2\text{O}_7$ .* Large red four-sided crys., prepd. by actn. of oxidizing fluxes on  $\text{Cr}_2\text{O}_3$ . Gives pps. sol. in nitric acid with Ba and Ag salts. Prop. and uses: **poison.** Causes vomitg., diarrh., bloody stools, feeblness, and genrl. clonic movemts. Has been used with KI and  $\text{AgNO}_3$  in tabes dorsalis; in doses of  $\frac{1}{2}$  to  $1\frac{1}{2}$  gr., in dyspep. simulatng. cancer of stomach.

# POTASSII BROMIDUM (\* F. G.).—KBr.

Colorless. cub. crys., sal. taste, sol. in aq., less sol. in spirt., prepd. by acting upon KHO with Br and destroying the  $\text{KBrO}_3$  with carbon. Purity determ. by titratn. with silver soln. Dose, 5 to 30 gr., .32 to 2 G. Prop. and uses: impairs functn. of brain and spin. cord, prodg. bromism. Used in nerv. diseases. to allay excitmt., prod. sleep, diminish spasm; in convul. nerv. dis. (whoop. cough, spasm, asthma, &c.); in epilepsy, sickness, as anaphrodisic.; menorrhg., neuralg., &c.

# POTASSII CARBONAS (\* F. G.).—*Potash,*

$\text{K}_2\text{CO}_3$ ,  $1\frac{1}{2}$  Aq. White crys. powd., caustic taste and react., deliq., sol. in aq., insol. in alcch., prepd. from plant ashes and by Leblanc process

from pot. sulph. **Dose, 10 to 30 gr., '65**  
to 2 G. Irrit. poison rarely used intern.,  
extern. to remov. itching, &c.

**POTASSII CHLORAS** (\* F. G.).— $\text{KClO}_3$ .  
Flat., colorlss. crys. prepd. by action of chlorine  
upon moist. mxt. of pot. carb. and slaked lime.  
(Gives off oxygen on ignitn.; explodes when  
tritd. with sulphur or sulphides. Solns. give  
no pp. with silver solus. Spar. sol. in cold aq.,  
insol. in absol. alc. **Dose, 10 to 30 gr.,**  
**'65 to 2 G.** Prop. and uses: **poison** in large  
doses; in small, raises (first depress.) blood  
pressr. and hastens pulse, large doses stop  
respirn. and destroy bld. pressr. Applied  
locally to mouth for ulceratn, &c., as gargle in  
follicul. pharyngit., as enema in dysentry.  
Intern. in croup, diphther., spasm of larynx;  
to arrest catarrh.; in chron. muc. diarrh.,  
bronchit., dropsy (diuret.). Much used in  
prepn. of oxygen.

**POTASSII CITRAS** (\*).— $\text{K}_3\text{C}_6\text{H}_5\text{O}_7$ . White  
powd., deliq., very sol. in aq., prepd. by actn. of  
citric acid on pot. carb. (Gives pp. with lime  
water on *boilg.* **Dose, 20 to 60 gr., 1·3**  
to 4 G. Prop. and uses: indirect. antacid,  
diuretic, antiscorbic.

**POTASSII CYANIDUM** (\* F.).— $\text{KCN}$ . White,  
opaq., deliq., crys. masses, prepd. by ignit. of  
 $\text{K}_4\text{FeCy}_6$ . Sol. in aq. and alc., shd. contain  
abt. 90 % real  $\text{KCy}$ . Evolv.  $\text{HCy}$  with acids.  
**Poison**, see p. 366.

**POTASSII FERROCYANIDUM** (\* F.).—*Yell. pruss. of pot.*,  $K_4FeC_6N_6$ , 3 Aq. Large yell. crystals, non-deliq., sol. in aq., insol. in alc., prepd. by fusing nitrogens. animl. matter with pot. carb. and iron. Evolv. HCl with hot dil. sulph. acid. Has not the intense pois. actn. of cyanides.

**POTASSII IODIDUM** (\* F. G.).—KI. Colorlss. cubc. crys., very sol. in aq., less sol. in alc., prepd. by adding iod. to KHO in soln. and removg. iodate by ignit. of the solid with carbon. React. neutr. when pure, but oft n. alk n. Shd. give no blue react. with HCl and starch soln. (iodate). AgI is nearly insol. in Liq. Ammon. **Dose, 2 to 20 gr.**, 13 to 1·3 G. Prop. and uses: readily absorb. into blood, causes rapid metamorph. of albumins. tissues. Prod. irritn. of muc. memb. of nose, eyes, bronch. tub., congestn. of bronch. muc. memb., hamoptysis, pneumon. consolidtn. Diuret. and anaphrodisic. Chiefly used in syphil. rheumat., scrofula, poisng. by Pb and Hg (which it eliminates), enlargd. glands, in hypertrophy of organs, numerous skin diseases, dropsy (diuretc.). Used as emmenagogue.

**POTASSII NITRAS** (\* F. G.).—*Nitre*,  $KNO_3$ . Colorlss. crys. or crystn. masses, which deflagrate with carbon at red heat. Cool taste. Sol. in aq., insol. in absol. alc. **Dose, 10 to 30 gr.**, ·65 to 2 G. Prop. and uses: **poison** in large doses. Given intern. for bronchit., asthma, relaxed sore throat, dyspepsia, hæmorrhg. It lessens irritability. of card. ganglia and slows

the heart. Used as alterativ. in scurvy, rheumatism, gout, &c. As diuret., and bladder stimult.; to prevent headache after debauch.

**POTASSII PERMANGANAS** (\* F. G.). —  $\text{KMnO}_4$ . Dark purple prismatic. cryst., obtained. by fusing oxide of Mn with  $\text{KHO}$  and  $\text{KClO}_3$ . Sol. in aq. to intense purple soln. (Condy's fluid), decompd. by alcohol. and organic subst. generally. Decomposes many dry organic subst., so made into pills with vasellene, paraffin, and kaolin. **Dose, 1 to 5 gr., .06 to .32 G.** Prop. and uses: as a disinfectant. and wash for wounds, sores, ulcers, in ozæna, &c. As gargle in fetid ulceration. and in diphtheria, mercurial stomatitis, &c. Used in amenorrhœa.

**POTASSII SULPHAS** (\* F. G.). —  $\text{K}_2\text{SO}_4$ . Colorless. crystals. spar. sol. in aq., insol. in alcohol. **Dose, 15 to 60 gr., .97 to 3.88 G.** Used as a saline purg. in dyspepsia, albuminuria, biliousness.

**POTASSII TARTRAS** (\* F. G.). —  $\text{K}_2\text{C}_4\text{H}_4\text{O}_6$ ,  $\text{H}_2\text{O}$ . Colorless. prisms prepd. by neutralising the acid tartrate with pot. carb. Blackens on heating and leaves pot. carb. and carbon, the former may be titrated with standard acid. Sol. in 1 pt. aq. **Dose, 60 gr. to 1/2 oz., 3.88 to 14.1 G.** Uses: in small doses to alkalize the blood and act as diuretic, antilithic; in larger as purgative.

**POTASSII TARTRAS ACIDA** (F.). — *Cream of Tartar*,  $\text{KHC}_4\text{H}_4\text{O}_6$ . Salt deposited from grape juice and wine lees. Spar. sol. in aq., insol. in spirit. Blackens on ignition, leaving less %

carbide, than pot. tart. Taste and reaction acid. Dose, 20 to 60 gr., 1·3 to 3·9 G. Uses and action in blood as pot. tart.; in  $\frac{1}{2}$  to  $\frac{1}{4}$  oz. doses as purg. in dropsy, Bright's disease, dysent., piles, prolaps. ani. Causes no peristalsis.

**POTASSIUM** (K, At. wt. 39) is an alkali-metal resembling sodium; its salts are more easily absorbed and secreted and occur principally in solid tissues; sod. salts in the fluids. Pot. salts paralyse motor nerv. and nerve-centres, they are antagonistic to barium. Inject. into veins they paral. heart, in circulation cause fall of bld.-pressr. and slow pulse.

**PYROXYLIN** (\* G.).—*Gun-cotton*. Dinitrocellulose, prepared by actn. of nitric and sulphuric acids on cotton. Its soln. in ether-alcohol (collodion) is used as dressing to skin, wounds, &c.

**QUININÆ HYDROCHLORAS** (\* F. G.).— $C_{20}H_{24}N_2O_2.HCl$ , 2 Aq. Cryst. like quin. sulph. but rather larger, prepd. from quinine and HCl. Sol. in cold aq. 34 pts., sprt. 3 pts.; very sol. in same liqds. boilg. Dose, 1 to 10 gr., ·06 to ·65 G. Uses as quin. sulph.

**QUININÆ SULPHAS** (\* F. G.).— $(C_{20}H_{24}N_2O_2)_2.H_2SO_4$ , 15 Aq. Filiform silky white crystals, prepd. from quinine and  $H_2SO_4$ . Spar. sol. in aq., 700 or 800 pts., more sol. in dilute sulph. acid; sol. fluorescet. Should not contain more than 5 % of other alkald. sulpts. Dose, 1 to 10 gr., ·06 to ·65 G.

Quinine (see p. 448), an alkaloid prepd. from var. spec. of *Cinchona*. It is prepd. from its solns. by

AmHO and ppt. is dissolv. by ether. The solns. treatd. with Cl then AmHO give green tint. (thall. test). It lessens protoplasmic movements, arrests fermentn., and is antiseptic; causes increased saliva, and appetite, sometimes nausea, contractn. of spleen, increased strength of circuln. in small doses, in large diminished heart actn. and bld.-pressr. Mod. doses quicken respirtn., diminish. tissue chnge. and lower temp. Is a general nerve tonic, but in large doses causes *cinchonism*, in still larger poisoning. Used as tonic, antiperiod., antipyretic. Other Cinchona alkaloids similar action, but less active.

**SACCHARUM LACTIS** (\* F. G.).—*Sugar of Milk*,  $C_{12}H_{24}O_{12}$ . Crystn. masses obtained from whey of milk. Sol. in cold aq. (7 pts.), in boilg. aq. (1 pt.), insol. in alcoh., ether, chloroform. Used as an excipient.

**SACCHARUM** (\* F. G.).—*Sugar*. Loaf sugar as in commerce prepd. from beet-roots, or better from the cane, and purifd. (*Sacch. Purif.*) by the action of animal char. and crystn. Beet and cane sugar are considered not identical, the latter sweeter. Used as antiseptic, preservative, corrigent, and vehicle for other med.

**SALICINUM** (\*).— $C_{13}H_{13}O_7$ . A crystn. glucoside from *Salix alba*, and var. spec. of *Populus*. Colorless, shining crystals, with bitter taste. Sol. in cold aq. (28 pts.) and sprt. (28 pts.), insol. in ether. **Dose**, 3 to 20 gr., .19 to 1.29 G.

Action similar to salicyl. acid, but feebler. Used as antipyret. and in headaches.

**SANTONINUM** (\* F. G.).— $C_{15}H_{18}O_3$ . A crystn. neutr. principle from *Santonica* q.v. Colorless. flat crystals, bitter taste, wh. fuse and sublime at gentle heat. Very spar. sol. in cold aq., spar. in hot, sol. in chlorfm. and boilg. sprt. **Dose**, 2 to 6 gr., .13 to .39 G. Used as a vermif. for round worms, useless for tape. Causes coloured vision and bright yell. urine. **Poison** in large doses, causing paralys. of cerebrum, respiration, and stimul. of medulla with convulsns. Treatment: chlorfm. and artificl. resprn.

**SAPO, DURUS ET MOLLIS** (\* F. G.).—A Soap is the salt of any fatty acid, but the term is generally restricted to soda (hard) and potash (soft) soaps. B.P. soaps are from olive oil.

**SODA CAUSTICA** (\* F.).—NaHO. Hydrate of sodium prepd. by actn. of slaked lime on *dil.* soln. of sod. carb. Hard white pieces or sticks, sol. in aq. and alcob. to strongly caustic liquid, of intense alkal. reactn., neutralsg. acids. Uses similar to Pot. Caust., but less powerful.

**SODA TARTARATA** (\* F.).— $NaKC_4H_4O_6$ , 4 Aq. Potassic sodic tartrate prepd. by neutralising cream of tartar with sod. carb. and crystng. Colorless. crys. tasting like common salt. Leaves mixt. of carbon, sod. carbon and pot. carb. on ignition wh. may be titrated. Sol. in 2.4 pts. aq. at 11° C. **Dose**, 1/4 to 1/2 oz., 7½ to 15 gr. Diuretic, 30 to 60 gr., 1.94 to 3.9 G.

Principally used as purgative, also as diuretic. It alkalises blood and urine.

**SODII ARSENIAS** (\* F.).— $\text{Na}_2\text{HAsO}_4$ , 12 Aq. to 7 Aq. Colorless, transpar. prisms prepd. by fusing  $\text{As}_2\text{O}_3$  (10 pts.),  $\text{NaNO}_3$  ( $8\frac{1}{2}$  pts.),  $\text{Na}_2\text{CO}_3$  (dried) ( $5\frac{1}{4}$  pts.), dissolvg. the melt and crystg. Has 12 aq. when fresh, becoming 7 aq. on exposure to air, and anhyds. at  $148\cdot9^\circ\text{C}$ . ( $300^\circ\text{F}$ ). **Dose**, 1/16 to 1/8 gr., '004 to '008 G. **Prop. and uses**: **poison**; same as arsenious acid.

**SODII BICARBONAS** (\* F. G.).— $\text{NaHCO}_3$ . White powd. obtained by saturat. sod. carb. with  $\text{CO}_2$ , or by reaction of  $\text{NaCl}$  and bicarb. of Am. Its solution gives white ppt. (not red) with soln. of  $\text{HgCl}_2$ . At a red heat it becomes  $\text{Na}_2\text{CO}_3$ , same change on boiling its soln. **Permanent in air. Dose**, 10 to 60 gr., '65 to 3·9 G. **Prop. and uses**: alkaline taste and reaction. Used as a wash and lotion. Stimul. gastric juice, and used in dyspep.; antacid; given in diabetes, in diarrh., and marasmus of infants. (Given to relieve frontal headache, to soften bronchial secretion.

**SODII BROMIDUM** (\* F. G.).— $\text{NaBr}$ . Granular white powd., deliq., sol. in aq. (less than 2 pts.), less sol. in spirt. Cl liberates Br from  $\text{NaBr}$ . **Dose**, 10 to 30 gr., '65 to 1·9 G. **Prop. and uses**: similar to  $\text{KBr}$ , but less irritg. to stomach.

**SODII CARBONAS** (\* F. G.).—*Washing soda*,  $\text{Na}_2\text{CO}_3$ , 10 Aq. The ordinary salt of commerce. Strongly alkaline, 20 gr. neutr. 9·8



gr. citric and  $10\frac{1}{2}$  gr. tartaric acid. Generally used as a raw material.

**SODII CHLORIDUM** (\* F. G.).—*Common salt*, NaCl. Ordinary table salt. Prop. and uses: salt is essential to food; extern. as stimul. to skin, as a wash to wounds; a soln. of  $\frac{1}{2}$  to 1% salt does not destroy vitality of tissues and blood; internally as an enema to destroy ascarides; as an emetic; to diminish secretn. of mucus by children suffering from worms.

**SODII HYPOPHOSPHIS** (\* F.).— $\text{NaPH}_2\text{O}_2$ . White granul. salt prepd. by reactn. of sod. carb. and calc. hypophos.  $\text{CaCO}_3$ , is filtrd. off and filtrate evapd. to dryness. Deliq., sol. in aq. and in sprt., insol. in ether. At a red heat evolves  $\text{PH}_3$ , which inflames. Oxid. to phosphate by oxidizing reagents. **Dose, 5 to 10 gr., .32 to .35 G.** Prop. and uses: used as a nerve stimulant. in nervs. debil., in anæmia, &c., to increase digestn. and nutritn. Much used in early stage of phthisis, to promote the removal of effused products affording a nidus to *bacillus tuberculosis*.

**SODII IODIDUM** (\* F. G.).—NaI. Dry white crystn. deliq. powd. Prepd. in a manner similar to KI, but using soln. of soda. Readily sol. in aq. and sprt. Strength found by titratn. with  $\text{AgNO}_3$ .

**SODII NITRAS** (\* F. G.).—*Chili nitre*,  $\text{NaNO}_3$ . Colorl-s. crys. with cool saline taste used in prep. of sod. arseniate.

**SODII PHOSPHAS** (\* F. G.).—*Sod. diphosphate*,  $\text{Na}_2\text{HPO}_4$ , 12 Aq. Colorless efflores. crys. prepd. from sod. carb. and phosphoric acid or acid phosphate of calcium. **Dose**,  $\frac{1}{4}$  to 1 oz., 7 to 28 G. Used as (tasteless) purgative and in hepatic derangements of children: as an alterative (20 to 40 gr.).

**SODII SALICYLAS** (\* F. G.).— $(\text{NaC}_7\text{H}_3\text{O}_3)_2$ , Aq. Colorless. cryst. scales prepd. by action of salicylic acid on sod. carb. or caustic soda. Sol. in aq., spar. in alcohol. Conc. soln. gives redd.-brown tint with ferric chlorid., dilute soln. a violet tint. Alkanine ash ( $\text{Na}_2\text{CO}_3$ ) on ignition. **Dose**, 10 to 30 gr., '65 to 1.9 G. Prop. and uses similar to the acid, but not antiseptic. (Given in fever to reduce temp., useful in chron. rheumatism. and to remove headache. Prevents formatn. of gall stones by rendering bile watery.

**SODII SULPHAS** (\* F. G.).—*Glauber's salts*,  $\text{Na}_2\text{SO}_4$ , 10 Aq. Transpar. prisms with bitter saline taste, prepared from salt cake by neutralizg. and crysting. from water. **Dose**,  $\frac{1}{4}$  to 1 oz., 7 to 28 G. Principally used as purgative, useful in bilious disorders, ulcer of stomach, chron. gastritis, dilation of stomach, chron. constipation; congestion of brain, abdominal. and pelvic organs, &c. Carlsbad water contains this salt with sod. bicarb. and others.

**SODII SULPHIS** (\*).— $\text{Na}_2\text{SO}_3$ , 7 Aq. Colorless. transparant. efflores. prisms prepd. by action of sulphurous acid on sod. carb. or caust. soda. Sol. in aq., very sol. in spirit. **Dose**, 5 to

**20 gr.**; .32 to 1.3 G or even up to 5i. (3.9 G). Used as a mouth wash in aphthæ and given in yeasty vomiting to destroy torula and sarcinae.

**SODII SULPHIOCARBOLAS(\*)**.— $\text{NaC}_6\text{H}_4\text{SO}_3$ , 2 Aq. Colorless, transparent prisms, prepd. by dissolving carbolic acid in sulphuric acid, preparing the Ba salt from this, and then the Na salt by double decomp. with sod. carb. Sol. in aq., less sol. in sprt., to neutr. solns. which (dilute) give violet tint with Ferri. Perchlor. Yields resid. of  $\text{Na}_2\text{SO}_4$  on ignition. **Dose, 10 to 15 gr.**, .65 to .97 G. Used in flatulence, dyspepsia, in phthisis, septic conditions.

**SODII VALERIANAS**.— $\text{NaC}_5\text{H}_9\text{O}_2$ . Dry white masses prepd. from valer. acid and sod. carb. Sol. in aq. and in sprt. to neutr. solns. **Dose, 1 to 5 gr.**, .06 to .32 G. Used as antispasmodic in hysteria.

**SODIUM**, At. wt. 23, is an alkali metal less positive than K; its salts are less readily absorbed and secreted than K salts; they paral. muscle and nerve less powerfully than K salts, and have less action upon involuntary muscles of heart and intestn. Sod. urate less sol. than pot. and lith. urates.

**SPIRITUS ÆTHERISCO**.—*Hoffman's Anodyne*. Colorless, volat. fluid, prepd. by mixing sulphuric acid, fl. 3 36, rect. sprt., fl. 3 40, and distillg. after standing 24 hrs. The distill. is in three layers—ether, water, oil of wine; after removing acid with lime water, the oil of wine is

seprtd. and the ether is remov. from it by spontaneous evap. (12 hrs.). The oil, 53, is then mixed with ether, fl. 58, and rect. sprt., fl. 516. Oil of wine is either ethyl sulphate,  $(C_2H_5)_2SO_4$ , ethyl sulphite,  $(C_2H_5)_2SO_3$ , and a polymer of ethylene, or else a sulphovinate of a hydrocarbon radicle. **Dose**, 30 m to 52, 1·8 to 7 c.C. Prop. similar to Spir. Æther.

**SPIRITUS ÆTHERIS NITROSI** (\* F. G.).—*Sweet (spirits of) nitre.* A soln. of nitrous compds., aldehyd., &c., in sprt.; prepd. by distill. rect. sprt., sulphuric acid, and copper (U.S.P., a 5 % soln. of ethyl nitrite). Treatd. in nitrometer with KI and  $H_2SO_4$  should yield 7 times its volume of nitric oxide (NO) (fresh), not *much* less than 5 vols. after keeping. **Dose**, 5 1/2 to 52, 1·9 to 7·7 c.C. Diaphor. and diuretic.

**SPIRITUS RECT.**—Vide Alcohol.

**STRYCHNINA** (\* F.).— $C_{21}H_{22}N_2O_2$ . An alkaloid prepd. from Nux Vomica. Colorless square octahedn. or prisms; for properties vide p. 451. **Dose**, 1/30 to 1/12 gr.; ·002 to ·005 (i. Prop. and uses: **Poison.** It stim. spin. cord and reflex. nerve centres, vaso-motor, respiration, &c., generally. (Given as a gastric tonic in dyspep., as a tonic in anæmia, headache, to check night sweats, as a mental stimulant, in some forms of paralysis, and as an aphrodisiac.

**SULPHUR PRÆCIP.** (\* F.G.).—*Milk of Sulphur.* Nearly white powd., prepd. by boilg. S with

lime, and decomp. the calcium sulphide and hyposulphite with HCl. Should be free from  $\text{CaSO}_4$ . **Dose, 20 to 60 gr., 1·3 to 3·9 G.** as a laxative; as an alternative, 10 gr., '65 G.

**SULPHUR SUBLIM.** (\* F. G.).—*Flowers* (*not flour*) of *Sulphur*. Sulphur crys. prepd. by sublimn. **Dose, 20 to 60 gr., 1·3 to 3·9 G.**

**SULPHURIS IODIDUM** (\*).—Greyish black crystn. lumps, wh. smell like I, and stain skin. Decomp. on boilg. with aq., iodine passing off. Prep. by fusing the mixed ingredients Iod. 4, Sulph. Subl. 1. For uses see Iodine.

**THIERTACA** (\* F.).—*Treacle*. The uncrystallised residue from refining of sugar. See Foods.

**THYMOLOL** (\* F. G.).— $\text{C}_{10}\text{H}_{13}\text{HO}$ . The stearoptene of the vol. oils of common Thyme (Thymus vulgaris), Horse Mint (Monarda punctata), and Carum Ajowan. It is prep. by agitg. the oil with 20% soln. of caust. soda, and treatg. the aqueous layer with HCl to separate the Thymol. A better plan is to separate from crude oil by exposure to cold ( $0^\circ \text{C}$ ). Large oblique prism. cryst., sp. gr. 1·02; B. P.  $230^\circ \text{C}$ .; sol. in 1200 pts. cold, 900 boilg. aq., in rect. sprt. 1 pt., ether, chlorfm., benzene, petr. sprt., oils, acetic acid, alkalis. It is a phenol homologs. with carbolic acid and cresylic acid; it gives no colortn. with ferric chloride. **Dose, 1/2 to 2 gr., ·03 to ·13 G.** Prop. and uses: disinfectant, local anasthet. and irritant. It paralyses the nerve centres in spin. cord and medulla, slows

re-pn. and lowers blood press. and temp. Used as antiseptic dressing, in skin diseases, as a gargle, and injection in ozena; intern. in diabetes and vesical catarrh.

**VERATRINE** (\* F. G.).—An alkaloid prepd. from Ceva lilla by pouring a concent. tinct. into cold aq. (to precip. albumen) and throwing down the alkaloid from the filtered liquid by ammonia. It is purifd. by soln. in HCl, treatment with char. and reprecipn. Pale, grey, amorph., colorless.; irritg. to nostrils; insol. in aq., sol. in spirt., ether. acids (fluoresc.), vide p. 456. Veratrine has no marked action on brain and spin. cord, but applied to muscle acts powerfully, increasing the period of contraction. Motor and sensory nerves are first stimul. then paralysed. Small doses quickn. pulse, raise blood press., and quickn. respirn.; moderate and large doses reverse this action. The temp. is lowered. It is used rarely internally because uncertain and dangerous; locally as unguent for neuralgia. **Poison.**

**ZINCI ACETAS** (\* F. G.).— $\text{Zn}(\text{C}_2\text{H}_3\text{O}_2)_2, 2 \text{ Aq.}$  Prepd. from zinc carb. and aet. acid. Thin translucent, colorless, crystn. pearly plates. **Dose** 1 to 2 gr.; .06 to .12 G. (tonic); **10 to 20 gr.**, .65 to 1.3 G. (emetic). Uses similar to the sulphate.

**ZINCI CARBONAS** (\* F.).— $\text{ZnCO}_3, (\text{Zn } 2 \text{ HIO})_2$ . Aq. Precipd. from zinc sulphat. by sod. carb. Uses as oxide.

**ZINCI CHLORIDUM** (\* F. G.).— $\text{ZnCl}_2$ . Colorless, opaque caustic rods or tablets; sol. in aq., alc., or ether. Prep'd. from Zn and HCl removing iron and lead if present with chlorine and zinc-carb. Used as a caustic, as an injection (1 or 2 gr. per pint), in gonorrh., as a disinfect. and deodoriz., &c.

**ZINCI OXIDUM** (\* F. G.).— $\text{ZnO}$ . Soft white tasteless, odorless, powdr., yellow when hot. **Dose**, 2 to 10 gr., .13 to .65 G. Used intern. as nerv. tonic and astringt. in nerv. headache, epilepsy, hysteria, &c., to check sweating in phthisis and secretn. in bronchitis; extern. in intertrigo, as ointment (eczema, &c.).

**ZINCI SULPHAS** (\* F. G.).—*White vitriol*.  $\text{ZnSO}_4 \cdot 7\text{Aq}$ . Colorless, transparent crys. somewhat resembling mag. sulphat., prep'd. from Zn and  $\text{H}_2\text{SO}_4$ . **Dose**, 1 to 3 gr., .06 to .19 G. (tonic); 10 to 30 gr., .65 to 1.9 G. (emetic). Used as astring. lotion in gonorrh., leucorrh.; as a wash in ophthalmia, gangrene of mouth; as a gargle in relaxed throat, enlarged uvula and tonsils. Intern. as an emetic, as an astringt. in diarrh. and dysentery. As a tonic in flatulence and distentn. of colon, as a nerve tonic in convuls. diseases (e. g. chorea, epilepsy, hysteria), in spasmodic affectus. of invol. muscul. fibre (e. g. angina pectoris, spasmodic asthma).

**ZINCI SULPHIOCARBOLAS**.— $\text{Zn}(\text{C}_6\text{H}_5\text{SO}_4)_2$ , Aq. Colorless, transparent, tabular efflor. crys. Prep'd. by heating a mixtr. of carbolic and sul-

phuric acids, and saturating with  $\text{ZnO}$ . Sol. in 2 pts. of aq. or sprt. Useful as an injectn. (2 to 3 grs. per  $\bar{3}$  of aq.) in gonorrh. and leucorrhœa.

### ZINCI VALERIANAS (\* F.) — $\text{Zn}(\text{C}_3\text{H}_9\text{O}_2)_2$ .

White pearly tabular crysts. prepd. by double decomp. from zinc. sulphit. and sod. valerianate, or from valerianic acid and  $\text{ZnO}$ . Spar. sol. in cold aq. or alcob., sol. in hot aq. or alcob. Dose, 1 to 3 gr.; .06 to .19 G. Used in chorea, epilepsy, and neuralgia.

**ZINCUM GRANULATUM.**—Zinc melted and poured into water,



## NOTES ON MATERIA MEDICA, UNITED STATES PHARMACOPEIA,

OFFICIAL ORGANIC SUBSTANCES OF INDEFINITE  
COMPOSITION NOT INCLUDED IN THE B.P.

gr. = grain; G. = gramme; l refers to note on Mat.  
Med. B.P.

**ABSINTHIUM** (F. G.). — *Wormwood*. (**Compositæ**.) Leaves and tops of *Artemisia Absinthium*. Loc. N. U.S.; det. from the old world. Cont. a vol. oil and a bitter principle, absinthin. **Dose** (of powder), **20 to 40 gr.**, 1·3 to 2·6 G. The bitter prin. stimul. the digestv. organs; the vol. oil is a narcotic poison. Used as bitter stomachic in atonic dyspep.; is said to be anthelmintic.

**ALLIUM** (F.). — *Garlic*. (**Liliacæ**.) Bulb of *Allium sativum*. Loc. Europe; cult. Cont. a vol oil (sulphide of allyl) which is irritant when applied to skin, and acts internally, as nerv. stimulat., carminativ., expectrant., diuretic., diaphoretic., emmenagog., anthelmintic.

**ALTHEA** (F. G.). — *Marsh Mallow*. (**Malvacæ**.) Root of *Althæa officinalis*. Loc. N. America, but generally import. from Europe. Cont. veg. mucus, asparagin, sugar, starch, &c. Used chiefly as demulcent, but ointment useful in psoriasis.

**APOCYNUM**. — *Candian Hemp*. (**Apocynacæ**.) Root of *Apocynum cannabinum*. Loc. U. States. Cont. resin, bitter extractv., tannin, apocynin (anorph.), and a glucoside apocynecin, both wh. act on heart like digitalis. **Dose** **15 to 30 gr.**, 1 to 1·95 G. Laxativ. and diuretic.; used in dropsy.

**ARNICA FLORES** (G.). — (**Compositæ**.) Flowers of *Arnica montana*. Loc. mid. and south Europe, N. West U. States. Cont. arnicin, a vol. oil, &c. Arnica has a stimulat. effect on skin, and used extern. in sprains and bruises; sometimes internally; but doubtful value in either case.

**ASCLEPIAS**.—*Pleurisy Root*.—(**Asclepiadaceæ**.) Root of *Asclepias tuberosa*. Loc. U. States (common). (cont. resin and odorous fatty matters, tannin, mucilage, &c. **Dose, 20 to 60 gr.**, 1·3 to 3·9  $\text{gr}$ . Diaphoretic, and expectrant., in large doses emetic and purgative.

**ASPIDIUM** is **FILIX MAS**, B.P., p. 18.

**AZEDARACH**. — (**Meliaceæ**.) Root-bark of *Melia Azedarach*, a native of China. Cont. a resinous prin, &c. Used as anthelmintic.

**BERGAMOT**.—See *Oleum Bergamii*, p. 194.

**BRAYERA** (?).—*Kosso*, syn. **CUSO B.P.**

**BRYONIA** (\* F.).—*Bryony*. (**Cucurbitaceæ**.) Root of *Bryonia alba* and *B. dioica*. Loc. Cent. and S. Europe. Cont. bryonin (a bitter prin.), sugar, starch, resin, &c.; Hydragog, cathartic now superseded by jalap.

**CALAMUS** (F. G.).—*Sweet Flag*. (**Araceæ**.) Rhizome of *Acorus Calamus*. Loc. Europe, Asia, N. America. Cont. vol. oil, a bitter glucosd., acorin. Feeble, aromatic, stomachic and stimulant.

**CALENDULA**. — *Marigold*. (**Compositæ**.) Fresh, flowering herb of *Calendula officinalis*. Loc. Europe, U. States, &c. Cont. a bitter prin. and calendulin. Used as applictn. to sprains and bruises as arnica.

**CANNABIS AMERICANA**.—(**Urticaceæ**, **Cannabineæ**.) *Cannabis sativa*, grown in U. States, and gathered while flowering. Vide *Cannabis*, B.P.

**CASTANEA**.—*Chestnut*. (**Cupuliferæ**.) Leaves of *Castanea vesca*, collected while green. Cont. tannic acid, &c. Has been used in whooping cough.

**CATECHU**.—(**Leguminosæ**.) Extract from wood of *Acacia Catechu*. Cont. catechu tannic acid, which is not a glucoside. Astringent.

**CAULOPHYLLUM**.—*Blac Cohosh*. (**Berberidaceæ**.) Rhizome and rootlets of *Caulophyllum thalictroides*. Loc. U. States (common westwards). Cont. a glucosd. saponin, also resins. Little med. virtue; has been used as diuretic, anti-spasmodic, emmenagogue.

**CHELLIDONIUM**.—*Celandine*. (**Papaveraceæ**.) *Chelidonium majus*. Loc. Europe, U. States (adv. from Eur.).

Cont. two alkalis, chelidonium and chelerythrine, prob. identl. with sanguinarine. Used extern. as irritant.; to destroy warts, corns; to lessen itching. Intern. as bitter tonic and alteraty in phthisis and scrofula; in large doses causes violent purging.

**CHENOPODIUM** (\* F.).—*American Hornseed*. (**Chenopodiaceæ**.) Fruit of *Chenopodium ambrosioides* var. anthelminticum. (Flowering tops, Codex.) Loc. N. America. The vol. oil distilled from it expels lumbricoid worms.

**CHIMAPHILA**.—*Pipsissewa*. (**Ericaceæ**.) Leaves of *Chimaphila umbellata*. Loc. Nrthn. Continents. Cont. tannin; arbutin, ericodin, chimaphilin (neut. principles). Astringent and diuretic, and employed in treatment of rheumtic pains.

**CHONDRUS** (F. G.).—*Irish Moss*, *Carraigeen*. (**Algæ**.) *Chondrus crispus* and *Ch. mammillosus*. Loc. coasts of Europe, N. America. Cont. mucilage wh. yields mucic acid with fuming nitric acid. Demulcent useful in bronchial and catarrhal affections.

**CORNUS**.—*Dogwood*. (**Cornaceæ**.) Root bark of *Cornus florida*. Loc. Nrthn. U. States (common southward). Cont. a bitter neutrl. prin. and a resinoid substance. Astringent tonic, and stomachic stimult.; has been used in ague, &c.

**CYDONIUM** (F.).—*Quince*. (**Rosaceæ**, *Pomeæ*.) Seeds of *Cydonia vulgaris*. Loc. temp. regions. Europe, N. America, Western Asia; cultd. (Remington). Cont. much mucilage, and used as a bland demulcent.

**CYPRIPEDIUM**.—*Ladies' Slipper*. (**Orchidaceæ**.) Rhizome and rootlets of *Cypripedium pubescens* and *C. parviflorum*. Loc. U. States (common N. and W.; sthwards. in Allegh.). Cont. resins, an acrid prin., vol. oil, tannin, starch, &c. It has spasmodic action, less powerful than valerian.

**DULCAMARA** (F.).—*Bittersweet*. (**Solanaceæ**.) Dried young branches of *Solanum Dulcamara* (from indigins. plants which have shed their leaves). Loc. Europe, N. Africa, Asia Minor, N. America. Cont. two bitter amorph. alklds., solanne and dulcamarine, also sugar, &c. Used chiefly as alteraty. in scaly skin dis., and has been recommended in chron. bronch. catarrh, asthma, whooping cough.

FRYTHONYLON, syn. COCA, B.P., p. 13.

EUONYMUS. — *Waloo*. (Celastraceæ.) Bark of *Euonymus atropurpureus*. Loc. U. S., N. York to Wis. and thwards. Cont. a bitter princip euonymin, resin, fixed oil, &c. Hepat stimulat., hydrag. cathartic, diuretic; causes intestinal, and hemorrhoidal irritatn. in large doses. Given in biliousness and chron. malaria.

EUPATORIUM. — *Thoroughwort*. (Compositæ.) Leaves and flowerg. tops of *Eupatorium perfoliatum*. Loc. U. States (common). Cont. vol. oil and eupatorin (bitter glucosd.). Tonic, diaphoretic.; emetic, and cathartic in large doses, useful in expellg. tapeworm.

FRANGULA, syn. RHAMNI FRANGULE CORT, B.P.

GAULTHERIA (F.). — *Winter green*. (Ericaceæ.) Leaves of *Gaultheria procumbens*. Loc. U. S., nrthwd. and Allegh. Cont. the glucosd. arbutin and vol. oil of wintergreen, wh. is chiefly salicylate of methyl with (1/10) a hydrocarbon gaultherilene. Used to flavour med., also as antipyretic.

GERANIUM. — *Cranesbill*. (Geraniaceæ.) Rhizome of *Geranium maculatum*. Loc. N. America. Cont. tannic and gallic acids, and used as an astringent injectn. and gargle and in diarrhœa.

GRINDÉLIA. (Compositæ.) Leaves and flowerg. tops of *Grindelia robusta*. Loc. U. States. Cont. resin, vol. oil. Used in asthma, bronchitis, bronchorrhea, whooping cough, in dyspnea due to cardiac dis., catarrh of urinary passages, and extern. to allay itching and pain in priapism and vaginitis.

GUARANA (\*F.). (Sapindaceæ.) Dried paste prepd. from seeds of *Paullinia sorbilis*. Loc. N. and W. Brazil. Cont. caffeine, 4 or 5%, and much tannic acid. Used in sick headache.

HAMMAMELIS. — *Witch Hazel*. (Hamamelaceæ.) Leaves of *Hamamelis virginica* collect. in autumn. Loc. U. States, N. America. Cont. a bitter princip, also tannic acid. Used extern. to inflantr., swellings, bruises, piles; intern. as a hæmostatic in menorrhagia, dysmenorrh., bleeding from lungs, &c. "Hazeline" is a prep.

HEDERA. — *American Pennyroyal*. (Labiatae.) Leaves and tops of *Hedera pulegioides*. Loc. U. States. The

common European pennyroyal (of F. Codex) is a different but similar plant, *Mentha Pulegium*. Cont. a vol. oil. Used as stimult., carminativ., diaphoretic; and much used as an emmenagogue in amenorrhœa, also in flatulence.

**HYDRASTIS.**—(*Golden Seal*. (**Ranunculaceæ**.) Rhizome and rootlets of *Hydrastis canadensis*. Loc. N. York to Wis. and sthwards. (rare). Cont. berberine, hydrastine, a third alkald., a vol. prin. not isolated, and hydrastin a resins. substance. Used as a simple bitter; It is an hepat. stimult., and antiperiodic (hydrastine).

**ICHTHYOCOLLA** (F.), syn. **ISINGLASS**, B.P. Appendix. (**Pisces, Sturiones**.) The swimming bladder of var. spec. of Acipenser.

**IGNATIA** (F.).—*Bean of St. Ignatius*. (**Loganiaceæ**.) Seeds of *Strychnos Ignatii*. Loc. the Phillipines, Cochinchina. Cont. strychnine and brucine. Prop. similar to *Nux Vomica*.

**ILLICIUM**, syn. **ANISI STELLATI** Fr., B.P., p. 4.

**INULA** (F. G.).—*Elecampane*. (**Compositæ**.) Root of *Inula Helenium*. Loc. Europe, S. Siberia, Himalaya, N. America. Cont. inulin (a subst. allied to starch), helinin (a neutr. bitter prin.), and a vol. oil. Used in chron. bronchitis and skin diseases, in amenorrhœa. Helenin is said to destroy the *Parillus tuberculosus*.

**IRIS.**—*Blue Flag*. (**Iridaceæ**.) Rhizome and rootlets of *Iris versicolor*. Loc. U. States (common). Prop. due to an oleoresin. It is emetic and cathartic and stimult. liver and intestnl. glands.

**JUGLANS**—*Butternut*. (**Juglandaceæ**.) Inner bark of root of *Juglans cinerea*. Loc. U. States (common). Cont. nucin,  $C_{36}H_{12}O_{10}$ , fix. oil, vol. oil, tannin, &c. Mild cathartic and feeble hepat. stimult.; used in chron. constipn., dysent., congestn. of abdoml. viscera, and in malarial conditions.

**JUNIPER** (F. G.).—(**Coniferæ**.) Fruit of *Juniperus communis*. Loc. Europe, N. Asia, N. America Cont. vol. oil, consisting of  $C_{10}H_{16}$  and  $nC_{10}H_{16}$ , also much glucose, resin; malic, formic, and acetic acids. The oil is

in B.P. and is cont. in gin and Hollands; it is diuretic, but does not appear to act on healthy kidneys. The oil is a local stimulant.

**LAPPA.**—*Burdock.* (**Compositæ.**) Root of Lappa officinalis. Loc. Europe, N. Asia, U. States (natd.). Cont. a bitter subst., inulin, sugar, mucilage, &c. Diaphoretic, diuretic, purgative, alterative. Used in skin dis., syphilis, scrofula, gout, rheumat., kidney disease.

**LEPTANDRA.**—*Culver's Root.* (**Scrophulariaceæ.**) Rhizome and rootlets of *Leptandra virginica*. Loc. Vermont to Wis. and sthward. Cont. leptandrin, regarded as the active principle. Cathartic, and hepatic stimulant. Used in biliousness and constipation.

**LYCOPodium** (F. G.).—(**Lycopodiaceæ.**) Sporules of *Lycopodium clavatum* and other spec. of L. Loc. Europe, N. Asia, and N. and S. America, Australia, the Cape, &c. Cont. certain vol. bases and abt. 47 % of fixed oil liquid at 15° C. Used as excipient for and to dust pills, as a diluent for insufflants, and dusting powder for skin, in making fireworks, &c. Dust is explosive.

**MACIS** (F.).—*Mace.* (**Myristaceæ.**) Arillus of fruit of *Myristica fragrans* (nutmeg). Loc. Molucca Islds. Impd. from Singapore. Cont resin and a vol. oil (7 to 9 %) closely resembling vol. oil of nutmeg. Chiefly used for flavouring.

**MAGNOLIA.**—(**Magnoliaceæ.**) Bark of *Magnolia glauca*, *M. acuminata*, and *M. tripetala*. Loc. U. States. Tonic and aromatic, resembling cinchona in action.

**MALTUM**—(**Graminaceæ.**) Seed of *Hordeum distichum* (barley) malted, i.e., caused to commence germination artificially, and dried. The extract (U.S.P.), made by macerating first with cold aq. 1 pt., and then with aq. at not more than 55 C., 4 pts., and evapor. at same temp. is nutritious, and acts as a digestive ferment (upon starch) by reason of contained diastase. Given in debility, especially with weak digestion; used as a vehicle.

**MARRUBIUM** (F.).—*Horehound.* (**Labiatae.**) Leaves and tops of *Marrubium vulgare*, the common horehound. Loc. temp. Europe and N. America (natd. from Eur.). Cont. a vol. oil and a bitter pr.n. marrubidin. Dose, 30

to 60 gr., 2 to 4  $\mathcal{L}$ . Expectorant, tonic, diuretic, diaphoretic, laxative, in large doses. Used in laryngitis and bronchitis, catarrh, chronic chest affections, with cough and copious expectoration.

**MATRICARIA** (F. G.).—*German Chamomile*. (**Compositæ**.) (*Chamomilla* of G. P.) Flower heads of *Matricaria Chamomilla*. Loc. Europe, N. America, and cult. Cont. a dark blue vol. oil (sol. in alcch.), and a bitter prin. (anthemic acid). Aromatic, bitter, carminative, and antispasmodic. Uses as chamomile.

**MELISSA** (F. G.).—*Balm*. (**Labiatae**.) Leaves and tops of *Melissa officinalis*. Loc. U. States (natd. from Eur.). Cont. a little vol. oil and has small med. virtue. Used as a diaphoretic, in slight febrile conditions.

**MENISPERMUM**.—*Canadian Moonseed*. (**Menispermaceae**.) Rhizome and rootlets of *Menispermum canadense*. Loc. U. States, Canada. Cont. a colourless alkald. and a small quantity of berberine (yellow alkald.). Used as a bitter tonic, and as substit. for Sarsaparilla.

**OLEUM BERGAMI** (\* F.).—(**VOLATILE**). A vol. oil obtained from fresh fruit-rind of *Citrus Bergamia*, var. *vulgaris*, by means of two revolving saucer-like discs, between which the rind is pressed, and lacerated by sharp edges.

**OLEUM ERIGONITIS** (**VOLATILE**).—A vol. oil distilled from fresh flow'g. herb of *Erigon canadense* (fleabane). **Compositæ**. Loc. Canada, U. States. This plant is tonic, astringent, diuretic; esteemed in uterine and other hemorrhages.

**OLEUM GOSSYPII SEMINIS**—*Cotton Seed Oil* (**FIXED**).—The oil expressed from cotton seed. See *Gossypium*, B.P., p. 20; also p. 196.

**OLEUM LAVANDULÆ** (**VOLATILE**).—A vol. oil distilled from flowering tops or *whole herb* of *Lavandula vera*. Is not contd. in B.P., only oil of lavender *flowers*. The oil obtained from the herb is inferior. (See *Oleum Lavandulae*, B.P., p. 195.)

**OLEUM MYRCIÆ** (**VOLATILE**).—*Oil of Bay*. (**Myrtaceae**.) A vol. oil distilled from *Myrcia acris*. An oil distilled from *Laurus nobilis* is also called oil of bay. *Oleum*

Myrcæ is the source of Spiritus Myrciæ (bay rum) of U.S.P., which is used as a perfume in faintness and various nervous affections, and also in preprtn. of hair-wash.

OLEUM SUCUINI.—*Oil of Amber* (VOLATILE). A vol. oil obtained by the destructive distillation of amber. The oil thus produced is a mixture of hydrocarbons and, according to Pelletier and Walter, presents the composition of oil of turpentine, contg. 88.7% C, and 11.3% H (Watts' Dict. Chem.). Extern. it is stimul., and used like oil of turp.; intern. said to be antispasmodic.

OLEUM THYMI (VOLATILE) ("oil of origanum") (G.).—A vol. oil distilled from Thymus vulgaris. (**Labiatae.**) Loc. S. Europe, N. America. This oil by partl. distill. is resolved into a portion coming over below 180° C. and a portion of higher B.P.; the former cont. cymene  $C_{10}H_{14}$  and thymene  $C_{10}H_{16}$ ; the latter thymol  $C_{10}H_{14}O$ . Oil of thyme is used as liniment, also as antiseptic. Used in vet. practice. See THYMOLOL, p. 99.

OLEUM TIGLI, syn. OLEUM CROTONIS, p. 196.

OLEA.—For other oils, and for further information, see pp. 193-196.

OPIMUM DENARCOTISATUM.—Denarcotised opium is made by extracting narcotine and odorous matters with ether, and making up residue to original weight with milk sugar.

ORIGANUM.—*Wild Marjoram*. (**Labiatae.**) Origanum vulgare. Loc. U. States (natd. from Eur.). Cont. a vol. oil, wh. is now largely superseded by oil of thyme. Tonic, diaphoretic, emmenag.; and also used extern. as fomentation.

PEPO.—*Pumpkin Seed*. (**Cucurbitaceæ.**) Seeds of Cucurbita Pepo. Loc. Asia and America; cultd. Act. prin. is probably a resin contained in the greenish envelope (endopleuron) surrounding the embryo. This resin is sol. in castor oil, which should be given before or after the seeds. Anthelmintic for tape-worms.

PHYTOLACCA BACCA.—*Poke Berry*. (**Phytolacaceæ.**) Fruit of Phytolacca decandra. Loc. N. America. Cont. purple col. matter, sugar, gum, &c. Alterativ. and laxativ., but little used.



## 111 PHARMACISTS' POCKET-BOOK.

PHYTOLACCA RADIX.—*Poke Root.* Cont. acrid resin, tannin, mucilage, &c. *Alteratv.*

PICROTOXINUM (F.). (**Menispermaceæ.**) (Fruit of *F. Col.*) A neutr. bitter prin. from seeds of *Anamirta paniculata*. Loc. Eastern India, Assam, Malayan Islds. Colorless flexible shining bitter crystals, which melt at abt. 200° C. to yell. liquid. **Poison** intern.; used (with care!) as ointment (10 grs. to 1 oz. lard) to destroy pediculi and in tinea capitis.

PILOCARPUS, syn. JABORANDI, B.P., p. 24.

PIPERINA.—See Notes on B.P., p. 3s.

PIN CANADENSIS.—*Canada or Hemlock Pitch.* (**Coniferæ.**) Prepared resinous exudn. of *Abies canadensis*. Loc. Canada, N. U. States. Resembles Burgundy pitch, but somewhat softer.

PRINOS.—*Lack Alder.* (**Aquifoliaceæ.**) Bark of *Prinos verticillatus*. Loc. N. America. Tonic and astringent; used in diarrhoea, malarial disorders, extern. for sores and chron. skin diseases.

PRUNUS VIRGINIANA.—*Wild (choke) Cherry.* (**Rosaceæ.**) Bark of *Prunus serotina*. Loc. U. States (com. ntwrds.), N. America. Cont. probably a subst. analogous to amygdalin and a bitter subst. It yields vol. oil and Hcy when distill. with aq. Nervous tonic and sedatv.; used in general debility associated with irritatn. (general or local), and sometimes in hectic fever and consumption and palpitatn. of heart.

PULSATILLA (F.) (**Ranunculaceæ.**) Herb of *Anemone Pulsatilla*, *A. pratensis*, and of *A. patens* var. *Nuttalliana*. Should not be kept more than a year. Loc. U.S. America (Asa Gray), Europe (Remington). Yields on distill. with aq. an acrid oily prin. with burning taste, which, on keeping, decomposes into anemonin and anemonic acid. Value not great. Anemonic acid inert, anemonin depress. circultn., respirtn., and spin. cord. **Poison.** Used in eclampsia and sympathetic neurosis, and as diaphoretic and emmenagog. It has been used in amenorrh., dysmenorrh., catarrh of muc memb., asthma, bronchitis, &c.

QUERCUS ALBA. (**Cupuliferæ.**)—Bark of *Quercus alba*. Loc. N. America. Cont. tannin, resin, &c. Used as astringent.

QUILLAIA (F.).—*Soap Bark.* (**Rosaceæ.**) Bark of *Quillaia Saponaria*. Loc. Chili, Peru. Cont. saponin, and seems to have the power of emulsifying fats. Not much used in med.; powder is an emulsi. Used to emulsify tar, clean cloth, and to give "heading" to beer, &c.

RHUS GLABRA.—*Samach.* (**Terebinthaceæ.**) Fruit of *Rhus glabra*. Loc. N. America. Cont. much tannin, and used as astringent.

RHUS TOXICODENDRON.—*Poison Ivy, Poison Oak.* (**Terebinthaceæ.**) Fresh leaves of *Rhus Toxicodendron*. Loc. N. America. Act. prin. is a vol. acid. Used intern. as a gastro-intestnl. irritn., drowsiness, stupor, delirium, paralysis, incontinence of urine from atony of bladder, skin diseases.

RUBUS.—*Blackberry.* (**Rosaceæ.**) Root bark of *Rubus villosus*, *Rubus canadensis*, *Rubus trivialis*. Loc. N. America. Cont. tannin, and used in diarrhœa.

RUBUS IDÆUS (F.).—*Raspberry.* Fruit of *Rubus idæus* (or of *R. strigosus* and *R. occidentalis*). Loc. Europe and Asia; cult. Colouring and flavouring.

RUMEX (F.).—*Yellow dock.* (**Polygonaceæ.**) Root of *Rumex crispus* and other species of *R.* Europe; natd; cult. (*R. acetosa*, sorrel, F. Cod.). Cont. ruminin (identical with chrysophanic acid) and tannic acid. It is astringent, bitter, and alteraty. Used in scorbutic diseases.

SALIX (F.).—*Willow.* (**Salicaceæ.**) Bark of *Salix alba* and other spec. of *S.* Loc. Sthru. Europe; cult. Cont. tannin and salicin (see Notes on B.P., p. 92). Antipyretic. Used in acute rheumat., headaches.

SALVIA (F. G.).—*Sage.* (**Labiataæ.**) Leaves of *Salvia officinalis*. Loc. Europe, America; cult. Cont. a vol. oil. Tonic, carminative, slightly astringent. Used in atonic dyspep., hectic sweating, and as a condiment.

SAMBUCUS, from *Sambucus canadensis* (flowers), very similar to *Sambucus nigra*, B.P.

SANGUINARIA.—*Blood Root.* (**Papaveraceæ.**) Rhizome of *Sanguinaria canadensis*, collect. in autumn. Loc. N. America. Cont. an alkld. sanguinarine, which irrit. intestnl. canal, prod. vomiting and diarrhœa. Small

doses stir, the respir. and circult. centr. in medulla, and motor centr. in brain and cord. **Poison.** Stimul. and tonic, sedativ. in larger doses, reducing pulse and stimul. respirin. Sometimes used in chronic bronchitis, cholagog., emmenagog.; useful in functional amenorrh., in dyspep. and gastro-intestul. catarrh.

**SANTALUM RUBRUM**, syn. **PTEROCARPI LIGNUM**, B.P., p. 40.

**SARSAPARILLA**, syn. **SARSÆ RADIX**, B.P., p. 43.

**SCUTELLARIA**. — *Skullcap*. (**Labiatae**) *Scutellaria lateriflora*. Loc. N. America, Pennsylv. to Wis. and sthwrds. Cont. vol. oil, tannin, a bitter prin., &c. Given as a nerve tonic in neuralgia, chorea, delir. tremens, nervous exhaustion.

**SPIGELIA**. — *Pink-root*, *Maryland Pink*. (**Loganiaceæ**) Rhizome and rootlets of *Spigelia marilandica*. Loc. Pennsylv. to Wis. and sthwrds. Cont. a bitter prin., resin, vol. oil, tannin, wax, &c.

**STILLINGIA**. — *Queen's Root*. (**Euphorbiaceæ**) Root of *Stillingia sylvatica*. Loc. U.S.A., E. Virginia and sthwrds. Cont. a resinous subst. In large doses causes vomiting and purging. Has been used as alterativ. in second. syphilis and skin diseases.

**TANACETUM** (F.). *Tansy*. (**Compositæ**.) Leaves and tops of *Tanacetum vulgare*. Loc. wild and cult. (from Eur.) Cont. an irritating. vol. oil, a bitter prin. tanacetin, re-in. col. matter, &c. **Poison.** Used as a diuretic. and stimul. in rheumatism, ague, and hysteria; as emmenagog. in amenorrh.; and as anthelmintic.

**THUJA**. — *Arbor vitæ*. (**Coniferæ**.) Fresh tops of *Thuja occidentalis*. Loc. N. America (Penn. and northwrds). Cont. a vol. oil, wh. acts somewhat like camphor, producing epileptifm. convulsns, &c., but having little action on heart, and lessening temp. The twigs cause abortion. Diuretic, astringent, aromatic, vermifuge. Used extern. to remove warts; intern. in pulmon. catarrh, dropsy, amenorrhæa, worms.

**TRITICUM** (F. G.). — *Couch grass*. (**Graminaceæ**.) Rhizome of *Triticum repens*, gathered in spring and deprived of rootlets. Loc. Europe, N. Asia, N. and S.

America. Cont. sugar, abt. 3%; triticin  $C_{12}H_{22}O_{11}$  (para. into sugar if kept in conc. soln. at  $110^{\circ} C.$ ). No starch or resin. Ash, 4%. Demulcent and diuretic. Used in cystitis and irritn. of urinary passages.

ULMUS (F.) — *Red or Slippery Elm.* (**Urticacæ.** Ulmææ.) Inner bark of *Ulmus fulva*. Loc. Cent. and Northn. U. States, Canada, N. England to Lake Superior and sthrds. Cont. mucilage. Used as demulcent, astringent, and tonic; also in skin diseases.

USTILAGO. — *Corn Smut.* (**Fungi.**) *Ustilago Maydis*, grown upon Zea Mays (Maize or Indian corn) (**Graminacææ**). Loc. S. Europe, N. Africa, India, Sthn. States, and Mexico, &c. Should be kept only a year. Resembles ergot in action, and probably cont. the same alkld. **Dose** 1.4 to 1.5; 1 to 3.9 G. Used as ergot.

VANILLA (F. G.). (**Orchidacææ.**) Fruit of *Vanilla planifolia*. Loc. E. Mexico. Cont. vanillin (the aldehyde of methyl-protocatechuic acid), fatty and waxy matters, gum, starch, &c. Used as perfume and for flavouring; as an aromatic stimulant in hysteria and low fevers.

VIBURNUM. — *Black Haw.* (**Caprifoliacææ.**) Bark of *Viburnum prunifolium*. Loc. N. America. Cont. valericanic acid, resin, tannin. Said to be useful in preventing abortion, and in dysmenorrhea.

VIOLA TRICOLOR (G.). — *Pansy.* (**Violacææ.**) The wild-grown flowering herb of *Viola tricolor*. Loc. N.Y. to Illin. and sthrds. (Gray), Europe; cult. (Remington). (*V. tricolor arvensis* F. Cod.) Cont. a little violine resembling emetine, and having emeto-cathartic properties. **Dose**, 15 to 40 gr., 1 to 2.6 G. Used as unguent or cataplasm in empetigo and eczema; intern. in bronchitis.

XANTHOXYLUM. — *Prickly Ash.* (**Rutacææ.** Xanthoxylææ.) Bark of *Xanthoxylum fraxineum* and of *X. carolinianum*. Loc. Carol., Virginia, and sthrds. Cont. a vol. oil, resins, and perhaps berberine. Aromatic and (irritant) bitter, somewhat similar to *Mezerium* and *Guaiacum*. Used in rheumat., toothache, palsy of tongue.

OFFICIAL INORGANIC SUBSTANCES, SALTS, ACIDS, ALKALIES, &c.; ALSO DEFINITE ORGANIC SALTS, ACIDS, ALKALOIDS, &c., U.S.P., NOT INCLUDED IN THE B.P.

*No doses are given in U.S.P.*

ALCOHOL is of two strengths: Alcohol of 91% by wt. (91% by vol.) and sp. gr.  $\cdot 820$  at  $60^{\circ}$  F. ( $15^{\circ}\cdot 6^{\circ}$  C.), and Alcohol 101. of 15.5% by wt. (55% by vol.) and sp. gr.  $\cdot 928$  at same temp.

ALUMINI HYDRAS.— $\text{Al}(\text{HO})_3$ . Pprd. from alum by sod. carb., washed, dried at (not above)  $40^{\circ}$  C., and powdered. Sol. in acids and fixed alkalies. **Dose, 2 to 5 gr.,  $\cdot 13$  to  $\cdot 32$  G.** Freely astringt., desiccant; used as powd. in influmty, skin diseases.

AMMONII IODIDUM (F.).— $\text{NH}_4\text{I}$ . Pprd. by mixing solns. of  $\text{Am}_2\text{SO}_4$  and KI. Used as solvent and alteraty., like KI. When mixed with KI it prevents the depressing action of the latter. **Dose, 3 to 5 gr.,  $\cdot 19$  to  $\cdot 32$  G.**

AMMONII SULPHAS.— $(\text{NH}_4)_2\text{SO}_4$ . Used in prep. of other Amm. salts. Not used internally.

AMMONII VALERIANAS.— $\text{NH}_4\text{C}_3\text{H}_9\text{O}_2$ . Pprd. by passing  $\text{NH}_3$  into the monohydrated acid. **Dose, 2 to 8 gr.,  $\cdot 13$  to  $\cdot 22$  G.** Given in hysteria, like valerian.

ARGENTI CYANIDUM.—AgCN. Pprd. by precipgt. from  $\text{AgNO}_3$  with HCN. Used in extemporaneous prep. of hydrocyanic acid: AgCN 6 pt., Acid Hydrochlor. 5 pt., Aq. Dest. 55 pt.; mix aq. and acid, add the cyanide, and decant the clear liq., which is of U.S.P. and B.P. strength ( $2\frac{1}{2}$  real HCN).

AURI ET SODII CHLORIDUM (F.). A mixt. of equal pts.  $\text{AuCl}_3$  and NaCl. **Dose, 1/10 to 1/5 gr.,  $\cdot 006$  to  $\cdot 012$  G.** Used as an alterative.

BENZINUM. A distillate from American petroleum, consisting of hydrocarbons,  $\text{C}_{10}\text{H}_{20} + 2$ . Sp. gr.  $\cdot 67$ – $\cdot 675$  and B.P.  $50^{\circ}$  to  $60^{\circ}$  C. ( $122^{\circ}$  to  $140^{\circ}$  F.). Used as a solvent for fats, resins, caoutchouc, &c. Must not be confounded with Benzol ( $\text{C}_6\text{H}_6$ ).

**CALCI BROMIDUM (F.).**— $\text{CaBr}_2$ . **Dose, 30 to 60 gr.,** 1·9 to 3·9 G. Used as hypnotic.

**CAMPHORA MONOBROMATA (F.).**— $\text{C}_{10}\text{H}_{15}\text{BrO}$ . Prep'd. by action of Br. on campher. **Dose, 5 gr.,** ·32 G. As nervous sedative.

**CARBONET BISULPHIDUM (F.).**— $\text{CS}_2$ . Sp. gr. 1·272. B.P.  $46^\circ\text{C}$ . ( $114^\circ\cdot8\text{ F}^\circ$ ). Not used internally; but is a powerful, transient anæsthetic if breathed. It acts as a local anæsthetic if atomised, and has been used as a local irritant in enlarged lymphatic glands, insufficiency of ear-wax, &c. Recently in rectal injections for phthisis.

**CHINOIDINUM.** A mixture of alkalis, mostly amorph., obtained as residue from manuf. of crys. Cinchonin alkalis. **Dose, 5 to 30 gr.,** ·32 to 1·9 G. Tonic and anti-periodic.

**FERRI<sup>III</sup> CHLORIDUM.**— $\text{Fe}_2\text{Cl}_6$ , 12 Aq. Prep'd. by dissolv. Fe in HCl, oxidiz. with  $\text{HNO}_3$ , and crystalliz. It keeps well in this solid form.

**FERRI CITRAS.**— $\text{Fe}_2^{III}(\text{C}_6\text{H}_5\text{O}_7)_2$ , 6 Aq. A scale preparation, made by evap'g. a solution of the salt. **Dose, 5 gr.,** ·32 G. Useful in making pills.

**FERRI ET AMMONII SULPHIAS.**— $\text{Fe}_2(\text{NH}_4)_2(\text{SO}_4)_6$ , 24 Aq. *Ammonio ferric Alum.* Pale violet, effloresc. crys.; odourless, with styptic taste and acid reaction. **Dose, 5 to 10 gr.,** ·32 to ·65 G. More astringent than alum, it has less stimulant properties than other Fe salts. Used in leucorrh., and to lessen albumen in intermitt. albuminuria.

**FERRI ET AMMONII TARTRAS (F.).** A scale preparation, made by taking 60 pts. tart. acid, neutraliz. half with Ammon. Carb. and adding the other half; to this is added the iron pptd. as hydrate by  $\text{AmHO}$  (and washed) from 90 pts. of solution of tersulphat. of iron. The soln. is filt'd., evap'd., and dried on glass plates. Mild chalybeate. **Dose, 10 to 30 gr.,** ·65 to 1·9 G.

**FERRI ET STRYCHNINE CITRAS.** A scale prep., made by dissolv. together, Ferri et Am. Citras 98 pts., Strychnina and Acid Citr. 1 pt. each, and "sealing." **Dose, 3 to 5 gr.,** ·2 to ·33 G.

**FERRI HYPOPHOSPHIS.**— $\text{Fe}_2'''(\text{H}_2\text{P}_2\text{O}_6)_6$ . A white powd. which evolves  $\text{PH}_3$  on ignition. **Dose, 5 to 10 gr.,** .32 to .65 G. (in syrup). Given in phthisis, nerv. debility, &c.

**FERRI IODIDUM SACCH.** Prepd. by adding soln. of  $\text{FeI}_2$  to sugar of milk, and evaporating. **Dose, 2 to 5 gr.,** .13 to .33 G.

**FERRI LACTAS (F.).**— $\text{Fe}''(\text{C}_3\text{H}_5\text{O}_3)_3$ , 3 Aq. Pale greenish-white crusts, permanent in air, prepd. by acting on Fe with lactic acid, and crystallising. **Dose, 12 to 20 gr.,** .65 to 1.3 G., daily in chlorosis and anemia.

**FERRI OXALAS.**— $\text{Fe}''\text{C}_2\text{O}_4 \cdot \text{H}_2\text{O}$ . *Ferrous Oxalate.* Pale yellow crys. powd., permanent in air, prepd. by pptn. from ferrous sulphate with oxalic acid. **Dose, 2 to 3 gr.,** .13 to .19 G.

**FERRI PYROPHOSPHAS (F.).** A scale prep., made by mixing Sod. Pyrophos. 10 pts., to 9 pts. Ferri Citr. in soln., and "scaling." **Dose, 2 to 5 gr.,** .12 to .33 G.

**FERRI VALERIANAS**— $\text{Fe}_2'''(\text{C}_5\text{H}_9\text{O}_2)_6$ . *Ferric Valerianate.* Prepd. by double decomp. between ferrous sulphate and sod. valerianate. **Dose, 1 to 10 gr.,** .06 to .65 G. Rarely used.

**HYDRARGYRI CYANIDUM (F.).**— $\text{Hg}(\text{CN})_2$ . Prepd. by passing HCN into HgO in water. **Dose, 1/16 to 1/8 gr.,** .001 to .005 G. As an alternative in syphilis.

**HYDRARGYRI SUBSULPHAS FLAV. (F.).**— $\text{Hg}(\text{HgO})_2\text{SO}_4$ . Prepd. by adding  $\text{HgSO}_4$  to boilg. aq. **Dose** (as alterativ.), 1/4 to 1/2 gr., .016 to .032 G. A powerful irritant, and rarely used.

**HYDRARGYRI SULPHIDUM RUB. (F.).**— $\text{HgS}$ . *Mercurion.* Prepd. by fusing and sublimg. Hg and S. Used by fumigation.

**HYOSCYAMINE SULPHAS.**— $(\text{C}_{17}\text{H}_{23}\text{NO}_3)_2\text{H}_2\text{SO}_4$ . Prepd. from the alkaloid and  $\text{H}_2\text{SO}_4$ . **Dose, 1/16 gr.,** .004 G. Narcotic and sedative. Used as a mydriatic; by alienists in controlling maniacal excitement.

**LITHII BENZOAS (F.).**— $\text{LiC}_7\text{H}_5\text{O}_2$ . Prepd. by treatg.  $\text{Li}_2\text{CO}_3$  with the acid. **Dose, 15 to 20 gr.,** .97 to 1.3 G. Used in gout and rheumatism.

**LITHII BROMIDUM** (F.).— $\text{LiBr}$ . Pprd. by double decomp. with  $\text{FeBr}_2$  and  $\text{Li}_2\text{SO}_4$ , and other methods. **Dose, 15 to 30 gr.**, .97 to 1.9 G. Very efficient as a hypnotic.

**LITHII SALICYLAS** (F.).— $2\text{LiC}_7\text{H}_5\text{O}_3, \text{H}_2\text{O}$ . Pprd. by treatg.  $\text{Li}_2\text{CO}_3$  with the acid. **Dose, 20 to 40 gr.**, 1.3 to 2.6 G. Given in gout and rheumatism.

**MAGNESII SULPHIS**— $\text{MgSO}_3, 6\text{H}_2\text{O}$ . Pprd. by treatg.  $\text{MgO}$  in suspension with  $\text{SO}_2$ . **Dose, 15 to 30 gr.**, .97 to 1.9 G. Used as alkaline sulphites. Should be kept in well stopped vessels.

**MANGANI SULPHAS** (F.).— $\text{MnSO}_4, 4\text{Aq}$ . Pprd. by heating  $\text{MnO}_2$  with  $\text{C}$ , and treatg. residue with  $\text{H}_2\text{SO}_4$ . **Dose, 5 to 20 gr.**, .32 to 1.3 G. Tonic.

**PHYSOSTIGMINE SALICYLAS**.— $\text{C}_{15}\text{H}_{21}\text{N}_3\text{O}_2\text{C}_7\text{H}_5\text{O}_3$ . Pprd. by adding the alkald. to the acid in hot aq. and crystg. by cooling. **Dose, intern., 1/20 gr.**, .003 G. (not more). Used as Physostigmia.

**PHLOCARPINE HYDROCHLORAS** (F.).— $\text{C}_{11}\text{H}_{16}\text{N}_2\text{O}_2, \text{HCl}$ . Pprd. by neutralsg. the acid with the alkald. **Dose, 1/8 to 1/4 gr.**, .008 to .016 G. Diaphoretic, sialogogue. See Pilocarp. Nitras, p. 84.

**POTASSII HYPOPHOSPHIS**.— $\text{KH}_2\text{PO}_2$ . Pprd. by mixing solns. of calcium hypophos. and pot. carb., filtering off  $\text{CaCO}_3$ , and evapg. (*below*  $100^\circ \text{C}$ ., to avoid explosion) until the salt granulates. **Dose, 15 gr.**, .97 G. Used as other hypophosphites.

**POTASSI SULPHIS**.— $\text{K}_2\text{SO}_3, 2\text{H}_2\text{O}$ . Pprd. by passing  $\text{SO}_2$  through soln. of  $\text{K}_2\text{CO}_3$ , and adding to the bisulphite thus formed a wt. of  $\text{K}_2\text{CO}_3$  equal to that first taken. **Dose, 15 to 60 gr.**, 1 to 3.9 G. Used as antiferment, like Sod. Sulphs.

**QUINIDINE SULPHAS** (F.).— $(\text{C}_{20}\text{H}_{24}\text{N}_2\text{O}_2)_2\text{H}_2\text{SO}_4, 2\text{H}_2\text{O}$ . Pprd. from the mother liquors after crystn. of quinine. **Dose, 2 to 20 gr.**, .13 to 1.3 G. Used as anti-periodic and anti-pyretic, in treatment of malaria, &c.

**QUININE BISULPHAS** (F.).— $\text{C}_{20}\text{H}_{24}\text{N}_2\text{O}_2\text{H}_2\text{SO}_4, 7\text{H}_2\text{O}$ . Pprd. by adding Acid. Sulph. to Quin. Sulph. suspended in aq., and evapg. the soln. It is 70 times more sol. in aq. than the sulphate. **Dose, as the sulphate.**



QUININE HYDROBROMAS (F.).— $C_{20}H_{24}N_2O_2HBr, 2H_2O$ . By decomg. Quin. Sulph. in alcob. soln. with KBr; or with  $BaBr_2$ ; or by combining the acid and alkalioid. **Dose, 2 to 20 gr., .13 to 1.3 G.**

QUININE VALERIANAS (F.).— $C_{20}H_{24}N_2O_2C_5H_{10}O_2, H_2O$ . Pprd. by combining the acid and alkalioid, or by mixing Quin. Sulph. in alcob. soln. with sod. valer. when sod. sulph. is formed (insol. in alcob.). **Dose, 2 to 10 gr., .13 to .65 G.** Used as Quin. Sulph.

SAPON. This is the same as Sapo Durus of the B.P. Sapo Viridis U.S.P. is directed to be made with Potassa and fixed oils (olive oil B.P.).

SODII ACETAS (F.).— $NaC_2H_3O_2, 3H_2O$ . Pprd. by action of the acid upon sod. carb. It is not deliq., like pot. acetate. **Dose, 20 to 60 gr., 1.3 to 3.9 G.** Used like pot. acetate, said to be a milder but equally efficient diuretic.

SODII BENZOAS (F.).— $NaC_7H_5O_2, H_2O$ . Pprd. by adding the acid to sod. carb. **Dose, 60 gr., 3.9 G.** Used in rheumat., diphtheria, phthisis, &c.

SODII BICARBONAS. The official salt of U.S.P.; it was formerly directed to be purified by percolating 6 pts. ( $= 96$  fl.  $\bar{3}$ ) of Aq. Dest. through 64 oz. of the conit. salt; the residue is 99% strong. Sod. Bicarb. Ven. (also U.S.P.) not less than 95%.

SODII BISULPHIS (F.).— $NaHSO_3$ . Pprd. by *saturatg.* sod. carb. with  $SO_2$ , evapg. and crystlsg. **Dose, 5 to 10 gr., .32 to .65 G.** Used like Sod. Sulphis.

SODII CHLORAS.— $NaClO_3$ . Pprd. by mixing sod. hyd. tart. with pot. chlort., when sod. chlort. remains in soln. Much more sol. than the pot. salt, and explodes like it when triturated with S., sugar, &c. **Dose, 10 to 20 gr., .65 to 1.3 G.** Used like pot. chlorate.

SODII HYPOSULPHIS (F.).— $Na_2S_2O_3, 5H_2O$ . More properly Sodii Thiosulphas. Pprd. by decomg. calc. thiosulph with sod. sulph. or carb. **Dose, 10 to 30 gr., .65 to 1.9 G.** Alteratv. and solvent; extern. in baths and ointment. Much used in photography ("hypo").

SODII PYROPHOSPHAS (F.).— $Na_4P_2O_7, 10H_2O$ . Pprd. by heatg. disod. phosph. to redness. Used in making Ferri Pyrophosph.

**SODII SANTONININAS.**— $2\text{NaC}_{15}\text{H}_{19}\text{O}_4$ ,  $7\text{H}_2\text{O}$ . Prpd. by dissolvg. santonin (1 oz.) in Liq. Sodae, U.S.P., 4 fl. 3 with aq. (1 fl. 5). **Dose, 3 gr.**, '19 G. Used like santonin.

**STRYCHNINE SULPHAS (F).**— $(\text{C}_{21}\text{H}_{22}\text{N}_2\text{O}_7)_2\text{H}_2\text{SO}_4$ ,  $7\text{H}_2\text{O}$ . Prpd. by combining the acid and the alkald. **Dose and uses like strychnine.**

**SULPHUR LOTUM.** Prpd. by digestg. Sulph. Subl., 12 pts., with Liq. Ammon., 1 pt., for 3 days, with occasional agitation, and subsequently washg. with aq. till no sulphuric acid can be detected with soln. of  $\text{BaCl}_2$ .

**ZINCI BROMIDUM.**— $\text{ZnBr}_2$ . Prpd. by decompg. zinc sublt. with pot bromd., or by acting upon finely divided Zn with Br. **Dose, 5 gr.**, '32 G. Hypnotic.

**ZINCI IODIDUM.**— $\text{ZnI}_2$ . Prpd. by digestg. Zn with I in water. **Dose, 1/2 to 2 gr.**, '03 to '13 G. Alternative.

**ZINCI PHOSPHIDUM.**— $\text{Zn}_3\text{P}_2$ . Prpd. by passing vapour of P in a current of dry H over fused zinc. **Dose, 1/20 to 1/8 gr.**, '003 to '008 G. Nerv. stimult. and aphrodisiac.

# A LIST OF SOME DRUGS OF INDEFINITE COMPOSITION NOT OFFICIAL IN THE B.P. OR U.S.P.

Drugs *official* in the Pharmacopœia of India are included.

Dose given is for adults.

**Abrus precatorius** (*Leguminosæ*). (Ind. Pharm.)—*Jequirity seeds*. Loc. tropics generally. Used to cause irritation for cure of granular lids, epithelioma, lupoid growths, ulcers, &c.

**Acacia Catechu**. (Ind. Pharm.)—v. p. 104.

**Aconitum ferox** (*Ranunculacæ*). (Ind. Pharm.)—From the Himalayas at 10,000 to 14,000 feet elevation. Resembles *A. Napellus*, but is more diuretic; less antipyretic, and diaphoretic. **Dose**, 1 m hourly of tr. (1 in 8 S.V.R.). for neuralgia, acute gout. Extern. as Linim. for chilblains.

**Aconitum Fischeri**.—*Japanese Aconite*. (Cont. Japanese conitine (alkal.)).

**Aconitum heterophyllum**, (root) (*Ranunculacæ*). (Ind. Pharm.)—From the Western Himalayas, at 8000 to 13,000 feet elevation. Contains no aconitine, but an alkal. atisine. Tonic (5 to 10 gr.) and antiperiodic (20 to 30 gr.).

**Adonis vernalis**.—Lvs. and stlks. cont. adonidin (glucosid.), which resembles digitalis in action, but is stronger and not cumulative. **Dose**, 4 fl. 3 of inf. (1 in 40).

**Agar-Agar**.—*Japanese Isinglass*. From *Gelidium corneum*, a seaweed.

**Agaric** (*Polyporus officinalis*).—Larch or white agaric is given in doses of 10 to 30 gr.; .65 to 1.9 gr. or in the form of agaricin, a white crys. powd. (in doses of 1 to 1 gr.). Purgativ. in large doses, astringent in small doses; given for diarrh., to dry up milk, and, with Dover's powd., to check night sweats. **Dose** of tr. (1 in 10 P. Sp.), 20 to 60 m.

**Agaricus albus.**—*Larch or white Agaric.*

**Alchemilla arvensis.**—Astringt., tonic, diuretic. Dose of inf. of flwrs. heads (1 & 20), **2 fl. ʒ.**

**Alstonia constricta.**—Cont. alstonine or chlorogenine (alkald.), and used as febrifg. Dose of tr. (1 in 10 P.Sp.), **1/2 to 2 fl. ʒ.**

**Alstonia scholaris (Apocynæ).** (Ind. Pharm.)—(Common in forests throughout India. Cont. ditaine (alkald.) and bodies resembling gutta percha. Astringt., tonic, anthelmintic; antipruritic. Dose, **3 to 5 gr.**

**Amanita muscaria.**—Cont. muscarine (alkald.) Anti-hydrotic.

**Anacardium occidentale.**—*Cashew-nut.* Cont. abt. 90% anacardic acid, 10% cardiol. Vesicating; vermifuge.

**Andira inermis.** Purgatv., like jalap. Dose, **20 to 30 gr.** of powd. bark.

**Andrographis paniculata (Acanthaceæ).** (Ind. Pharm.)—The dried stalks and root of Kariyât or Greyat, common in India. Bitter tonic and stomachic, very analogous to Quassia in its action.

**Andropogon citratus (Gramineæ).** (Ind. Pharm.)—The vol. oil of Lemongrass (oil of Verbena) cult. in India. Stimulant, anti-spasmodic, diaphoretic; rubefacient.

**Andropogon Nardus.** (Ind. Pharm.)—Yields a similar vol. oil (oil of Citronelle).

**Andropogon pachnodes.** (Ind. Pharm.)—Also yields a similar oil to the two latter.

**Angelica (Archangelica officinalis).**—Arom. stim. and stomachic. Dose, **30 to 60 gr.**

**Anthoxanthum odoratum** has been used for hay-fever. The flowers owe their odour on drying to coumarin, which is said to cause hay fever.

**Apiol.**—A liq. prep. of *Apium Petroselinum* (parsley). Has been used in form of perles as antiperdc. in ague; also in amenorrh., dysmenorrhœa. Dose, **3 to 6 m.**

**Arachis hypogæa** (*Leguminosæ*). (Ind. Pharm.)—Fix. oil from seeds (Peanut oil). Cultiv. throughout tropics. A substitute for olive oil.

**Areca Catechu** (Betel nut).—Gently astringent. **Dose** of powd., 1/2 to 3/4 oz. Used in East as masticatory.

**Asarum europæum** (*Asarabacca*).—Emet., expect., purg., errhine. **Dose**, 10 to 30 gr. of powd. leaves.

**Asclepias cornuti** et **A. incarnata**.—Like *Asclepias*, U.S.P.

**Azadirachta indica** (*Meliacæ*). (Ind. Pharm.)—The leaves and bark of the Nim or Margosa tree, common throughout India. Cont. margoine (alkal.). Bark astring., tonic, and periodic; leaves stimulant.

**Baptisia tinctoria**.—An extract of wild Indigo is used under the term Baptisin. It is laxativ. in small doses, powerfully emetic and cathartic in large doses.

**Berberis asiatica**, **B. aristata**, and **B. Lycium** (*Berberidacæ*). (Ind. Pharm.)—Root bark of these differently, commonly called Ind. Barberry Bark. Cont. berberine, and used as tonic, antiperiodic, and diaphoretic.

**Berberis Lycium**.—Febrifg. and local astring. **Dose**, 1/2 to 2 fl. 3 of tr. (1 & 5) of the bark.

**Betula alba** (Birch).—Oil of bark has been used in chronic eczema.

**Bistort** (*Polygonum Bistorta*).—Astringent. **Dose**, 15 to 30 gr. of powd. root.

**Blatta orientalis** (*Cockroach*).—Diuretic, aphrodisic? **Dose**, 2 to 8 gr. of powd.

**Boldoa fragrans**.—The leaves cont. boldin (glucosid.), and are used in dyspep., liver affect., diuretic, (local anæsthetic, like cocaine?). **Dose**, 10 to 20 m of tr. (1 in 5 R.Sp.).

**Bonduc Seeds** (*Cesalpinia Bonducella*). (Ind. Pharm.)—Loc. Tropics generally. Bitt. tonic and antiperiodic. **Dose** of powd., 10 to 15 gr.

**Boswellia floribunda** (*Bursaraceæ*). (Ind. Pharm.)—The gum resin of this tree (*Olibanum*) found on the Somali coast. It cont. a resin  $C_{50}H_{30}O_3$ , a vol. oil  $C_{10}H_{16}$ , and an oxygenated oil. Ferobithinate stimulant, acting chiefly upon muc. membr., especially of lungs. Used in incense.

**Bryonia nigra**.—*Black bryony*. Root scrapings as poultice for black eye and ecchymosed spots.

**Butea frondosa** (*Leguminosæ*). (Ind. Pharm.)—Inspiss. juice of the Bengal kino tree, common throughout India. Similar to Kino.

**Calotropis gigantea**.—Root and barks used in India as diaphoretic, purgative, emetic. Dose of powd., **2 to 4 gr.** as diaph., **20 to 40 gr.** as emetic.

**Calotropis gigantea** and **C. procera** (*Asclepiadæ*). (Ind. Pharm.)—The dried root bark of Mudar, one or other of the species being common everywhere in India. Alterative, tonic; diaphoretic; emetic in large doses.

**Carum Ajowan** (*Umbelliferae*). (Ind. Pharm.)—The fruit of Ajwain or Onum plant, cultivated in India. Cont. cymene and thymol, and is stimulant, carminative, and antispasmodic.

**Castanea equina**.—*Horse chestnut*. Hooping cough, gout, neuralgia, rheumatism. Dose of fl. ext., **1/2 to 1 fl. 3**.

**Castoreum**.—Dried preputial follicles of beaver and their secretions cont. several fats, salicin, resin, vol. oil. Antispasmodic stimulant. Dose, **5 to 10 gr.**

**Cedron**.—Seeds of Simba C. Dose, **2 to 5 gr.** Bitter tonic, also used in S. Africa for snake bites.

**Centaurium** (*Erythraea centaurium*) herb.—Bitter, like gentian. Dose of powd., **20 to 60 gr.**

**Chekan** (*Martus Chekan*), leaves. —Aromatic, expectorant, coughs, bronchitis.

**Chiococca anguifuga**.—Bitter tonic, diuretic; emetic, cathartic. Dose, **20 to 40 gr.** as tonic, **120** as emetic.

**Chlorodyne.**—Said to be mixt. of treacle, chloroform, morphine, Ind. hemp, HCl, and Capsicum. **Dose, 10 to 20 m.**

**Coal Tar.**—An alcohol. soln., Liq. Carbonis Detergens, used as lotion in prurigo and chron. scaly dis. of skin.

**Cocculus.**—The frt. of *Anacardium ceculus*. Acid narcotic, seldom used.

**Cocculus cordifolius.**—Tonic, diuretic. **Dose of decoct. (2 oz. to 20 ʒ), 1 to 2 fl. ʒ.**

**Collinsonia canadensis.**—The root, commonly known as stone-root or knob-root. Is an antispasmodic; it is given in gravel and other urinary affectns., various forms of colic, and in lax conditns. of uvula, pharynx, vocal cords, gastric catarrh, cystitis, &c. **Dose of tr. (1 in 10 P. Sp.), 1 to 2 fl. ʒ.**

**Condurango G.P.**—(*Gonolobus Condurango*.) Alterative.

**Contrajerva.**—(*Dioscorea Contrajerva*), root. Stimul. tonic and diaphoretic. **Dose of inf. (1 & 12), 1 to 2 fl. ʒ.**

**Convallaria majalis.**—*Lily of the Valley*, herb. (Cont. convallarin, convallamarin (2 glucosd.). Functional and organic dis. of heart. **Dose of tr. (1 in 8 P. Sp.), 5 to 20 m.**

**Coptis Teeta** (*Ranunculaceæ*). (Ind. Pharm.)—The dried root imported into Bengal from Assam. It cont. berberine; used as pure bitter tonic. **Dose, 10 to 15 gr. of powd. root.**

**Coronella juncea.**—*Milk Vetch*. Roots, leaves, seeds, said to be galactagogues.

**Coto Bark.**—(Cont. cotoine (alkald.)). Increases intestinal absorptn., used for gastric and intestinal catarrh, diarrhœa. **Dose, 1/2 to 2 gr., or of tr., 10 m. Paracoto Bark** cont. paracotoine, similar but less powerful.

**Cotyledon umbilicus.** Epilepsy, chorea. **Dose of fresh juice, 1 fl. ʒ, or ext., 10 to 30 gr.**

**Crinum asiaticum** var. *toricarium* (*Amaryllidaceæ*). (Ind. Pharm.)—The fresh root of plant. Loc. Bengal, Ceylon, Ceylon, Moluccas, Cochin China; and cultivated. Emetic.

**Crotalus**.—Soln. of venom of rattlesnake, *Crotalus norridus*. Malignant scarlet fever. **Dose** (1 in 1000) 3 drops every three hours.

**Cucumis** (*Cucumis sativus*) F. Cod.—As a cooling ointment.

**Curara** or **Woorara**.—From spec. of *Strychnos*, &c. Cont. curarine (alkal.). Produces muscular relaxation; general muscular paral. (large doses). Has been used in tetanus (and as arrow poison).

**Curcuma longa**.—*Turmeric*. Used as fumigatn. in coryza.

**Damiana**.—Leaves of some spec. of *Turnera*. Aphrodisiac. Dose of liq. ext. (1 in 2) 1 to 2 5.

**Datura alba** (*Solanaceæ*). (Ind. Pharm.)—The leaves and seeds of Dhatura, common in India. Cont. probably daturine (alkal.). Very similar to Datura Stramonium.

**Daucus Carota**.—*Carrot*. Diuretic, galactagogue. **Dose, ad lib.**

**Dipterocarpus lævis** (*Dipterocarpaceæ*). (Ind. Pharm.) — From forests of En. India; produces an oleo resin, Gurjun, or wood oil, which is used, like copaiba, as a stimulant of mucous surfaces, and as a diuretic.

**Drosera rotifundolia**.—*Sundew*, leaves. (Bron. bronchit., asthma, whooping-cough, cough of phthisis. Dose of tr. (1 in 10 P. Sp.), 5 to 10 m.

**Diospyros Embryopteris**, *Persdon* (*Ebenaceæ*). (Ind. Pharm.)—The fruit of a plant common throughout India. It is a powerful astringent probably from presence of tannin.

**Echium vulgare**.—*Viper's Bugloss*. Galactagogue.

**Emblicæ Fructus** (*Hyphantus emblica*). — Cooling, diuretic, laxative, excites appetite. **Dose, 1 or 2 fruits,** or as confection.

**Eruca sativa**.—Said to be galactagogue.

**Erythrophlœum guineense**.—*Sassy* or *Cordal bark*. Cont. erythrophiline (alkal.) Resembles digitalin and picrotoxin combined. **Dose** of tr. (1 in 10 S.V.R.), 5 to 10 m.



**Euphorbia pilulifera.**—Dried plant is used in asthma, bronch. affectus., paroxysmal dyspnea, laryngel. spasm. whoopg.-cough, angina pectoris, and in all affectus. of pneumogastric. **Dose** of decoct. (1 in 40), 2  $\frac{3}{4}$  twice daily of tr. (1 in 5 P. Sp.), 10 to 30 m.

**Fucus vesiculosus.**—Sea (or *Bladder*) *Wrack*. "Anti-fat" is a preparation of this plant.

**Galium album.**—Used for epilepsy. **Dose** of juice, 2 to 4 fl.  $\frac{3}{4}$ .

**Galium aparine.**—(Cleaver's or goose grass has been given for dropsy, jaundice, scrofulous scaly eruptns., obesity, epilepsy, cancerous sores, as a styptic, &c. **Dose** of succus, 1 to 2 fl.  $\frac{3}{4}$ , of ext., 5 to 20 gr.

**Garcinia pictoria** (*Guttiferæ*). (Ind. Pharm.)—Produces Ind. gamboge, essentially the same as that of Siam.

**Garcinia purpurea** (*Guttiferæ*). (Ind. Pharm.)—Produces a fix. oil, Kokum butter, well suited for some pharmaceutical purposes, as for prep. of ointments, suppositories, &c.

**Geoffroya inermis.**—Bark is bitter, astring., febrifg., vermifg. **Dose**, 20 to 30 gr. Kinetc., purg., narcotic in larger doses.

**Geum urbanum.**—Aromatic, astringt., tonic. **Dose** of powd., 30 to 60 gr.

**Gokhru.**—*Pedaliæ Mæx.* Fruit employed for nocturnal seminal emissions, incont. of urine, impotence. **Dose**, 1 oz. as infusion (1 in 20).

**Gouania domingensis.**—Root cont. saponine. Used as dentifrice. Sialagogue.

**Gracillaria lichenoides.**—*Ceylon moss* (*Alga*) (Ind. Pharm.), and *G. confervoides*, from coasts of Ceylon and islands of the Indian Archipelago. Demulcent and nutritive.

**Gimmi rubrum** (*Eucalyptus rostrata*).—Astringt. in dysentery, diarrhœa. **Dose**, 5 to 20 gr.

**Gynocardia odorata** (*Biacnee*). (Ind. Pharm.)—

Caulmugra seeds, from forests of Malay Peninsula and India. Cont. a fixed oil, Ac. Alteratv. tonic; emetic in large doses.

**Helleborus niger.**—Purgative. **Dose** of powd. rhiz., **10 to 20 gr.**

**Henna.**—Lvs. of *Lawsonia inermis*, *L. spinosa*, *L. alba*. Cosmetic dye.

**Hibiscus esculentus** (*Malvacee*). (Ind. Pharm.)—

Okra, or edible Hibiscus, is cultivated throughout the tropics; the fresh immature capsules are official. It is emollient, demulcent, and diuretic, and probably cont. the same mucilage as Althaea.

**Hydrocotyle asiatica** (*Umbellifere*). (Ind. Pharm.)

—Loc. India, common. Herb used for spec. skin dis., scaly eruptions, ozæna; as an alteratv., diuretic. **Dose**, 4 to 10 gr.

**Hymenodictyon excelsum.** (Ind. Pharm.)—Cont. hymenodictyonine (alkld.) and asculin. Astringt., bitter, tonic, febrifig.

**Ipomæa cærulea.**—Purgative, painless, acts speedily and then ceases. **Dose** of tr. (1 in 5), 1 to 2 fl. 5.

**Jacaranda lancifoliata.**—Ext. has been used for syphilis, gonorrh., gleet. *J. procera*, *J. tomentosa* (Caroba) also said to be similar.

**Jambul.**—The seeds of *Eugenia Jambolan*. This drug is said to check the diastasic conversion of starch into sugar, and therefore has been given for diabetes. **Dose**, of powd., 5 to 10 gr.

**Jatropha Curcas.**—Nut cont. purgtv. oil, which is also used extern. to increase secretn. of milk. **Dose**, 12 to 15 drops = 1 fl. 5 of castor oil.

**Kava-Kava.**—*Piper methysticum*. Root cont. vol. oil, acid resin, and kavalin (methysticin) allied to piperin. Bitter tonic, stim., diuretic; useful in gonorrh., gout. **Dose** of inf. (1 in 320), 1/2 pint; of fl. ext., 15 to 60 m.

**Koromiko.**—*Veronica salicifolia*, V. *parviflora*. Herbs used in chron. dysentery and diarrhoea. **Dose** of tr. (1 in 5 P. Sp.), **1/2 to 13**.

**Lacuanthes tinctoria.**—Used to relieve cough. **Dose** of tr. (1 in 10 P. Sp.), **1 to 10 m**.

**Lanolin.**—A purified wool fat. It contains considerable quantities of cholesterolin and isocholesterin, with stearic and palmitic ethers of these alcohols, also glycerides of various fatty acids. Lanolin is used as a vehicle in ointments, and is considered to be more readily absorbed by the skin than are ordinary fats.

**Laminaria spiralis.**—Used as tent to dilate excretory canals.

**Lycoperdon giganteum** (Puff ball).—Used as hæmorrhagic static.

**Lythrum Salicaria.**—Astringt. bitter tonic. **Dose** of powd. herb, **60 gr**.

**Malva sylvestris.**—*Marsh Mallow*. Resembles *Althæa*, and forms emulcent Decoct.

**Manaca** (*Franciscæ uniflora*).—Purgtv., diuretic; used in syphilis, rheumatism.

**Mandragorina.**—A crys. alkald. from mandrake root, *Mandragora officinalis*. The sulphate is a mydriatic.

**Maydis stigmata.**—The stigmata of nearly ripe fruit of Zea Mays are demulcent and diuretic, and used in acute and chronic affections of kidneys and bladder, such as catarrh of, cystitis, nocturnal incontinence of urine, also cardiac dropsy. **Dose** of fl. ext., **1 fl. 3**.

**Menyanthes trifoliata.**—Cont. menyanthin (glucosd.), and is bitter tonic, emmenag. antiscorbt., vermifg., febrifg.; emet. and purgtv. in large doses.

**Mucuna pruriens** (*Leguminosæ*). (Ind. Pharm.)—The hairs of pod of cowhage, common throughout India. Anthelmintic. Action mechanical, and used for expulsion of *Ascaris lumbricoides* and *A. vermicularis*. Hairs are mixed with syrup to consistency of honey. **Dose**, **1/2 fl. 3** for child; **1/2 fl. 3** for adult.

**Mylabris Cichorii** (*Coleoptera*). (Ind. Pharm.)—The dried insect, or Teline fly, extending from Italy through Greece and Egypt to China; common in India. Vesicant, a complete substitute for cantharides.

**Oleum Gynocardiaë.**—*Chaulmogra Oil*. Fix. oil from seeds of *G. odorata*. Given intern. and externally for phthisis, scrofula, marasmus, psoriasis, lupus, leprosy, chron. rheumatism and gout. **Dose** (intern.), **2 to 15 gr.**

**Olibanum.**—The gum resin from *Boswellia thurifera*. Stimulant, antispasmodic; used by fumigation.

**Opoponax Chironium.**—Gum resin of, is antispasmodic, resembles Ammoniacum. **Dose, 10 to 30 gr.**

**Oryza sativa** (*Gramineæ*). (Ind. Pharm.)—The seeds of common rice.

**Pancreas.**—The secretion of this organ is said to contain four ferments (enzymes); these are (1) trypsin, which peptonises proteids, (2) a ferment which curdles casein of milk, (3) pancreatic diastase, which converts starch into grape sugar and dextrin, and (4) emulsive ferment, which emulsifies and partially saponifies fats. Various preparations of pig's pancreas are sold, and used generally to aid digestion.

**Papayotin** (*Papain*). From juice of *Carica papaya*. Digests fibrin. Used to remove warts, &c., from skin, in chron. eczema, to remove false membrane in diphtheria.

**Penghawar Djambi.** Lower part of stipes of a large fern from Sumatra; a powerful styptic.

**Pharbitis Nil** (*Convolvulaceæ*). (Ind. Pharm.)—Seeds of *Kaladana* cont. purgty. resin, pharbitisin, of which dose is **2 to 8 gr.**

**Phellandrium aquaticum.**—*Water Fennel*. Fruit is stim., diaphoret., expectrant, used in phthisis, bronchitis

**Pinus Pumilio.**—The oil of the leaf of this pine is used for inhalations, baths, &c. It possesses a more agreeable odour than *Ol. Pini Sylvestris*.

**Piscidia erythrina.** Root-bark is general sedativ.; relieves cough, toothache, &c.; allays pain, spasm, nerv. excitement. Dose of ext., 20 m to 2 3.

**Plantago Isphagula** (*Plantaginæ*). (Ind. Pharm.)—The seeds of Isphagul, cultivd. in India. Cont. mucilage and is demulcent and mildly astringent.

**Plocaria Helminthocorton.**—*Corsican Moss*. Anthelmintic, especially for *Ascaris lumbricoides*. Dose, 60 to 120 gr.

**Polygonum Bistorta.**—Astringt., used in passive hæmorrhage and mucous discharges. Dose of powd. root, 20 to 30 gr.

**Porphyra lacinata.**—Used as alteratv. in scorbutic and scrofulous affections.

**Quebracho Cortex** (*Aspidiosperma Quebracho*).—Cont. "aspidiospermine" (a mixt. of 6 alkalds.). Antipyretic; has been used for dyspnoea of asthma. Dose of tr. (1 in 5 P. Sp.), 1/2 to 1 fl. 3.

**Rhododendron chrysanthemum.** Stimulant then depressant, used in rheumat., gout. Dose, 1/2 oz. of leaves as decoct. (1 in 20).

**Rubia tinctorum.**—*Madder*. Root tonic and emmenag.; used in atonic amenorrhœa. Dose, 30 to 120 gr.

**Salix nigra.**—Root of Black or Pussy Willow is used as a sexual sedative. Dose, of liq. ext. (1 in 1), 1/2 to 1 fl. 3.

**Saponaria Vaccaria.**—Galactagogue.

**Sarracenia purpurea.**—Pitcher plant. Is considered tonic and diuretic.

**Scopolia japonica.**—Cont. scopoline (alkld.), which is equal to atropine as mydriatic and effect lasts longer.

**Scrophularia nodosa.**—Leaves used as ointment in pemphigus, rupia, tinea capitis, empetigo, and other skin diseases.

**Sethia acuminata.** Vermifuge and narcotic. Useful for roundworms in children. **Dose** of ext. (2 = 1 of lvs.), 20 to 40 m.

**Siegesbeckia orientalis.**—Said to be useful, combined with KI, in gout and syphilis; juice is applied to gangrenous sores and for tinea and thrush.

**Simaruba amara.**—Bark is astring., and bitt. tonic. Diarrh. and dysentery. **Dose** of inf. (180 gr. to 1 pt.), 1 to 2 fl. 3.

**Simulo** (*Capparis caribaea*).—Fruit useful in nerv. dis.; hysteria and particularly epil. psy.

**Sinapis juncea** (*Cruciferae*). (Ind. Pharm.)—Seeds of Indian mustard or Rai. Very similar to ordinary mustard, and imported into Britain to serve as mustard.

**Solanum dulcamara.** (Ind. Pharm.)—P. 105.

**Soymida febrifuga** (*Meliaceae*). (Ind. Pharm.)—The bark of the Rohun tree, from mount. forests of Malabar, Cochin, and Central India. Cont. a resinous substance, also tannic acid. Astringent tonic and periodic.

**Squalus Carcharius** (*Pisces*). (Ind. Pharm.)—The liver of the white shark, common in the Indian seas. Contains a variety of stearin called squalin. Substitute for cod liver oil

**Strophanthus hispidus.**—Seeds cont. strophanthin (allied to digitalin) and incin. Cardiac tonic and diuretic. **Dose** (hypoderm), 1/120 to 1/60 gr.

**Tayuya** (*Trianosperma scifolia*).—Cont. tayuyina, which is drastic purg., and emetic, lymphatic excitant, and active depurative. Tertiary syphilis and dropsy. **Dose** of tr. (1 in 4 P. Sp.), 6 to 15 m increased.

**Terebinthina Chia** (*Pistacia Terebinthus*).—Oleo-resin, said to be useful in uterine cancer.

**Thapsia garganica.**—Cont. a rubifacient resin (Codex).

**Tinospora cordifolia** (*Menispermaceae*). (Ind. Pharm.)—Root and stems of Gulancha. Loc. tropical India. Cont. a bitter prin., but composition not determined. Tonic, antiperiodic, and diuretic.

**Toddalia aculeata** (*Ricetaceæ*). (Ind. Pharm.)—The root bark of the plant, which is a native of the Madras peninsula. Comp. not well examined. Arom. tonic and stimulant.

**Tonga**.—A preparatn. made partly from liq. scraped from bark of *Piperimum mirabile*. Used for neuralgia.

**Tormentilla** (*Potentilla Tormentilla*).—Root is astring. tonic. Dose of powd., **30 to 60 gr.**; of decoct. (1 in 10), **1 to 2 fl. 3.**

**Tussilago farfara**.—*Coltsfoot*. Herb is demulcent.

**Tylophora asthmatica** (*Asclepiadææ*). (Ind. Pharm.)

—The dried leaves of the Antamul, common in Bengal, Madras peninsula, Ceylon. Emetic, diaphoretic, and expectorant.

**Urtica dioica**.—*Stinging Nettle*. The alcohol. fl. extract is hæmostatic.

**Verbascum thapsus**.—Lvs. as tr. (1 in 8 P. Sp.). used in phthisis to increase weight; smoked to control cough. Dose of tr., **20 to 60 m.**

**Vinca major**.—*Great Periwinkle Herb*. Astringent, used in menorrhagia and uterine hæmorrhage. Dose of liq. ext., **1 to 2 fl. 3** frequently.

**Viscum album**.—*Mistletoe*. Berries said to be emetic and purgtr., and have been used in hysteria and epilepsy. Dose in powd., **10 to 60 gr.**

**Yerba Santa**. *Eriodictyon glutinosum* (*E. californicum*). —Lvs. are stim. to bronchial mucous membrs.; used for phthisis, &c. Dose of "Malto-Yerbine," **1 to 4 fl. 3.**

# A LIST OF SOME DRUGS OF DEFINITE COMPOSITION NOT OFFICIAL IN THE B.P. OR U.S.P.

Dose given is for adults.

**Acid. Catharticum.**—A glucosd. from Alex. Senna. It has the purgative, but not griping and nauseating action of this drug. It is sol. in aq., tasteless, and therefore easily taken.

**Acid. Chrysophanicum.**—A const. of Chrysarobin, q. v.

**Acid. Hydrofluoricum** (fluoric) HF.—Prpd. as 30% soln. by acting on fluor spar with  $H_2SO_4$ , and redistilling the soln. A *diluted* acid contg. 4% of this soln. is used in doses of 15 to 60 m for goitre, diphtheria, &c. It corrodes glass.

**Acid. Osmic.**— $OsO_4$ . Used in 1% solution for hardening tissues for microscope; hypoderm. (dose, 5 m) for sarcoma, cancer, strumous glands, sciatica, neuralgia, goitre.

**Acid. Picricum.**— $C_6H_3(NO_2)_3O$ . Trinitrophenic acid is prpd. by action of  $H_2O_3$  on carbolic acid. Used to harden tissues for microscope; in some forms of headache, but colours urine, skin, &c., yellow. The K salt is explosive.

**Acid. Pyrogallicum.**— $C_6H_3(OH)_3$ . Prpd. by heatg. gallic acid. Dose, 1/2 to 1½ gr. Used with silver to stain hair, and in photography as a developer. Given to check hæmoptysis; in psoriasis.

**Æthyl Bromidum.**— $C_2H_5Br$ . Hydrobromic ether boils 105° F. (40.5° C.), and has sp. gr. 1.419. Anaesthetic and inhaled for nerv. headache.

**Æthyl Iodidum.**— $C_2H_5I$ . Hydriodic ether boils 148° F. (64.4° C.), and has sp. gr. 1.94. Anaesthetic and inhaled to relieve dyspnoea of bronchitic asthma and cedematous laryngitis.

**Aldehydum.**— $C_2H_4O$ . Used in a diluted form as inhaltn. in oozema and catarrh. congestions. A dangerous anaesthetic.



**Ammonii Formias.**— $\text{HCO}_2\text{NH}_4$ . Dose, 5 to 10 gr. Stimult. in chron. affectns. of nerv. system, epilepsy, &c.

**Amylene.**— $\text{C}_{10}\text{H}_{10}$ . Anaesthetic, but seldom used.

**Aniline.**— $\text{C}_6\text{H}_7\text{N}$ . Used as sulphate. Dose, 1 gr. Used in chron. spasmod. nerv. affections.

**Antipyrin.**—*Dimethyloryzchinine*.  $\text{C}_{11}\text{H}_{12}\text{ON}_2$ . An alkald. pprd. by synthesis as a white sol. powd. with sweetish bitter taste. Dose, 30 gr. hourly for 3 hours, hypoderm. if it causes vomiting. Antipyretic. It sometimes, but rarely, causes vomitg. and collapse. Causes perspiration.

**Apomorphina.**— $\text{C}_{17}\text{H}_{17}\text{NO}_2$ . An alkald. derived from morphine by the action of  $\text{HCl}$ . Dose, 1/20 gr. It is injected subcutaneously as an emetic.

**Arbutin.**—A crys. glucosd. from *Uva-ursi* leaves and other spec. of Ericaceæ. Dose, 15 to 60 gr. For uses see *Uva-ursi Folia* B.P.

**Asparagin.**— $\text{C}_4\text{H}_8\text{N}_2\text{O}_3\cdot\text{H}_2\text{O}$ . A crys. substance from *Althæa*, *Belladonna*, *Glycyrrhiza*, &c. Dose, 1 to 2 gr. Stimult. diuretic in dropsy and chron. gout.

**Bromal Hydras.**— $\text{C}_2\text{H}_3\text{OH}$ . Large oblique prisms pprd. in similar manner to chloral hydrate. Dose, 2 to 5 gr. It has an irritg. action upon skin, and paral. heart; unsuitable for use internally. Useful in epilepsy?

**Brucina.**— $\text{C}_{23}\text{H}_{26}\text{N}_2\text{O}_4$ . An alkald. occurring with strychnine in various spec. of *Strychnos*. Sol. in alcoh., in 100 pts. of chlorofm., in 850 pts. of cold aq. Similar to but much less powerful physiologically than strychnine, and more easily eliminated. Dose, 1/12 to 1/2 gr. Has been used for epilepsy.

**Camphora Salicylata.**—Pprd. by heating camphor, 84 pts., with salicylic acid, 65 pts.; and can be obtained in definite crystals. Dose, 1 to 5 gr.

**Carbonis Tetrachloridum.**— $\text{CCl}_4$ . A heavy liqd. (sp. gr. 1.56), volatile and mobile, with quince-like odour. Anaesthetic, but effects transient. Used as inhalatn. to relieve pain; for hay fever, dysmenorrhæa, &c.

**Chinoline, quinoline.**— $C_9H_7N$ . A vol. base which can be prpd. synthetically, and forms crys. salts. It is given as tartrate in 5 to 15 gr. doses, or as salicylate. Germicide, antiseptic, antipyretic.

**Chlorum.**—*Chlorine*. Used as Liq. Chlori, a soln. of the gas in water; sp. gr. 1.003. **Dose, 10 m to 1/2 fl. ʒ.** highly diluted. Antiseptic, slightly stimulant; used as a gargle, wash for wounds, &c.

**Colchicin.**—The bitter active prin. of *Colchicum autumnale*. **Dose, 1/32 to 1/16 gr.** in a pill.

**Conina.**— $C_8H_{15}N$ . A liq. alkld. with mousy odour, from *Conium maculatum*. **Dose, 1/4 gr.**, increased to 2 gr. Given also as hydrobromate in acute mania without organic brain dis., in spasms, affectus, neuralgia, &c.

**Coumarin**—A neutrl. crys. prin. from Tonka beans, &c., but now made synthetically. Used for its odour.

**Daturina or Hyoscyamina.**— $C_{17}H_{23}NO_3$ . An alkld. from *Datura Stramonium*. Given as sulphate.

**Delphina.**— $(C_{22}H_{35}NO_3)$ . An alkld. from *Delphinium Staphisagria*, *D. consolida*, &c.; it is sol. in ether (11 pts.), chloroform. (15 pts.), absol. alc. (20 pts.). **Dose, 1/4 to 1/2 gr.** in pill for dropsy and spasms, asthma. Locally as ointment for neuralgia, ear-ache, &c.

**Duboisina.**—Identical with *Daturina* or *Hyoscyamina*.

**Emetina.**—An alkld. from *Ipecac.* **Dose** as expect. 1/200 to 1/50 gr.; as emetic. 1/6 to 1/3 gr.

**Ethideni Dichloridum.**— $C_2H_4Cl_2$ . A liq. of B. Pt. 135–140° F. (45 to 48° C.), and sp. gr. about 1.2; sol. in aq., 300 pts., and miscible with absol., ether, or chloroform. Anaesthetic, said to be much safer than chloroform.

**Fuchsine.**— $(C_{20}H_{10}N_3, HCl)$ . Hydrochlorate of Rosaniline. **Dose, 1/4 to 4 gr.** Said to be useful in renal albuminuria, but also said to be inert if pure. The conl. substance often contains arsenic.

**Hydrargyri Tannas.**—Mercurous tannate is sol. only with decomp., but when treated with alkalis or their carb. it yields very finely divided Hg, which readily passes into the system. **Dose, 1ʒ gr.** Used for syphilis, and gives rapid and favourable results.

**Hydrogenii Peroxidum.**— $H_2O_2$ . Pprd. by addg. peroxide of Ba to diluted sulphuric acid, filtg., neutg. with barium oxide, and again filtg. The usual strength is 3·0%, which evolves 10 volumes of gas on heatg. It is the active ingred. of "Sanitas" and also of ozonic ether.

**Dose** (*of 10 vol.*), 1/2 to 2 5. Antiseptic; used as applictn. to chancres, sore throat. Has been recommended for rheumatism, diabetes, cardiac dis., bleaching hair, &c.

**Hydroquinone.**—*Para-dihydroxybenzene*.  $C_6H_4(OH)_2$ . Obtained chiefly from coal-tar. Action like resorcin, but 4 times stronger, and uses similar.

**Hyoscina.**—A colorless, syrupy alkald. from *Hyoscyamus niger*, *Duboisia myoporoides*, &c. Given as hydrochlorate, hydrobromate, or hydriodate, in **doses of 1/300 to 1/100 gr.** It is a powerful narcotic; used in insomnia; to calm excitement, &c.

**Hyoscyamina.**—Vide p. 23.

**Ichthyol.**—*Sulpho-ichthyolate of Ammonium*. A tar-like substance containing sulphur, obtained by the distilltn. of a bituminous quartz containing remains of fish found in the Tyrol; the distillate is neutralised with ammonia. Salts are also formed with Li, Na, Zn, &c. The various compds. are used in **10 to 20 gr. doses** for eczema, psoriasis, acne, favus, prurigo senilis, pruritis, chronic rheumatism.

**Kairin.**—*Hydrochlorate of oxyethyl-chinoline hydride*. **Dose, 3 to 30 gr.** Antipyretic, causes perspiration.

**Kaolin.**—*China clay*.  $H_2O.Al_2O_3 + H_2O.2SiO_2$ . Kaolin purifd. by elutriation is used as applictn. to skin. "Cimolite" is a special preparatn. of it. It is also useful in making pills or powders of silver nitrate, pot. permang., &c.

**Methyl Chloridum.**— $CH_3Cl$ . This gas is used as an anæsthetic by dentists, being supplied from cylinders in same way. It is also applied (obliquely) to the skin in treatment of rheumat., pleurisy, &c.

**Methyleni Dichloridum.**— $CH_2Cl_2$ . Pprd. by action of nascent H on chloroform., sp. gr. 1·344, and B. Pt. 40° C. (104° F.). Used as an anæsthetic, especially in ovariectomy. The coml. substance is of doubtful purity.

**Mollin.**—A white soap, containing about 17½ of fat in excess. Used as an ointment where absorption is required, especially in combination with Hg salts.

**Morphinæ Hydrobromas.**— $C_{17}H_{19}NO_3 \cdot HBr \cdot 3H_2O$ . Given with Acid. Hydrobrom. as a sedativ., and considered to have less action upon the brain than other salts of morphine.

**Muscarine.**—The active prin. of poisons. fungi; is a powerful sialogogue and antidote to atropine. v. p. 361.

**Naphthalin.**— $C_{10}H_8$ . Is used as an antiseptic on the intestines, and has proved useful in typhoid fever, diarrhoea, &c. **Dose, 1½ to 8 gr.**

**Naphthol.**— $C_{10}H_7OH$ .  $\beta$  Naphthol is antiseptic and germicide, and has been employed in skin diseases.

**Naphthol.**— $C_{10}H_7OH$ . Cryst. sol. in alcohol, ether, chloroform, olive oil, vaseline; sparingly sol. in hot aq.  $\beta$  Naphthol only is used; it has an action upon the skin like tar; used in scabies, eczema, and local sweating.

**Narceina.**— $C_{23}H_{29}NO_9$ . An alkald. from opium (v. p. 452). **Dose, 1/8 to 1 gr.** Soporific, less headache and perspiratn. than morphine.

**Narcotina.**— $C_{22}H_{23}NO_7$ . An alkald. from opium. **Dose, 1 to 3 gr.** Antiperiodic.

**Nicotina.**— $C_{10}H_{14}N_2$ . A vol. alkld. from tobacco (v. p. 457); sol. in aq., alcohol, ether. **Dose, 1/6 to 1 gr.** Used for tetanus; it is an antidote to strychnine.

**Nitroglycerinum.**—*Glonoine*.  $C_3H_5(NO_3)_3$ . Prpd. by the action of a mixt. of nitric and sulphuric acids on glycerine. **Dose, 1/200 to 1/50 gr.**, increased to 1/10 gr. Its action resembles that of nitrites, but is more persistent. Produces headache in some persons. Used like amyl nitrite.

**Papaverina.**— $C_{21}H_{21}NO_4$ . An alkld. from opium (v. p. 452). **Dose, 1/12 to 1/3 gr.** Narcotic, without previous excitement or subsequent headache and giddiness.

**Paraldehyde.**— $C_6H_{10}$ . **Dose, 30 to 60 m.** Acts like chloral, but with less depressing action upon heart; unsuitable with gastric irritation.

**Quinetum.**—The mixed alklds. from red cinchona bark. It cont. principally cinchonidine (50 to 70%), with quinine, cinchonine, &c. **Dose, 1 to 5 gr.**, or more.

**Resorcin.**—*Meta-dihydroxybenzene.*  $C_6H_4(HO)_2$ . Pprd. by heatg. caustic soda with meta-benzene disulphonate to  $250^\circ C$ . White crys. plates sol. in less than 2 parts aq., and 20 pts. olive oil. **Dose, 5 to 15 or 30 gr.** Powerfully antiseptic; antipyretic. Used locally in diphtheria, skin dis., syphilitic sores; and (in bladder) in cystitis. Prod. great perspirn., and antipyretic action is short.

**Saccharinum.**—*Benzoyl sulphonic imide.*  $C_6H_4(CO)(SO_2)NH$ . A derivate of coal tar, closely connected with the phenol compds. It has 100 to 300 (variously estimated) times the sweetening power of cane sugar, and is secreted by kidneys unchanged. Used where sugar is objectionable, as in diabetes.

**Scillain.**—A prin. from squill. Cinnamon-brown powd. insol in aq. and ether, sol. in alcoh. Acts like digitalin.

**Scillipicrin.**—A prin. from squill. Yell.-white powd. sol. in aq. Powerfully retards heart.

**Terebene.**—An isomer of oil of turp.  $C_{10}H_{16}$ . Antiseptic, disinfectant, deodorizer; used as inhalation.

**Thalline.**—*Tetrahydroparamethyloxychinolin.* An alkld. pprd. synthetically as a colorless. sol. powd., with odour like meadow-sweet. **Dose, 5 gr.** or more. Antipyretic.

**Theobromina.**— $C_7H_8N_4O_2$ . An alkld. from cacao, v. p. 456. It is allied to caffeine, being dimethyl-xanthine, and caffeine trimethyl-xanthine.

**Trichlorophenol**  $C_6H_3Cl_3O$ .—White acid. crys. prepared by acting upon phenol with chlorinated lime. It is insol. in aq., but forms soluble salts with bases. Used in purulent ophthalmia as a 2% soln.

**Trimethylamina.**— $N(CH_3)_3$ . Pprd. by distg. herring brine or stale fish with lime. The hydrochlorate is in deliq. crys., is sol. in aq., and is given in **2 to 3 gr.** doses in rheumatism and gout.

**Ulexina.**—A crys. alkld. from *Ulex europæus* (common furze); it is a powerful diuretic. Said to benumb the tongue, and to act as an antidote to strychnine. Requires caution in use.

**Uranii Nitras.**— $(\text{UO})\text{NO}_3, 3\text{H}_2\text{O}$ . Sol. in aq. **Dose,** 1 to 5 gr. (given for diabetes, and used as a throat spray (10 gr. to 13).

**Urethane.**—*Ethyl carbonate*. It is used as a hypnotic in delirium tremens, acute mania, and suitable for children; instead of chloroform in tetanus, &c.

## NOTES ON THE ORDINARY FOOD MATERIALS, CONDIMENTS, &c.

### THE CEREALS—

**Wheat.**—The grain of var. spec. of *Triticum*, e.g. *T. aestivum*, *T. hybridum*, *T. compositum*, *T. polonicum*.

From wheat the following foods are obtained:—flour, bread, vermicelli, macaroni, semolina, soujce, manna croup, cagliari, &c.

**Barley.**—The grain of var. spec. of *Hordeum*, e.g. *H. distichon*, *H. vulgare*, *H. hexastichon*, *H. zeocriton*.

Barley yields a flour used for making a form of bread; it also yields other forms of food, as malt, pearl barley, alcohol.

**Oats.**—The grain of *Avena sativa*, of which there are many varieties.

Oatmeal is the ground grain; groats are oat grains divested of husk and integument; embden and prepared groats are crushed groats. Oats are used as a source of alcohol.

**Rye.**—The grain of *Secale cereale*.

Rye bread, rye beer, and ergot are useful products of rye.

**Maize.**—The grain of *Zea Mays*.

Maize is the most fattening of the cereals; it has a laxative tendency. Polenta, corn-flour, maizena, and various alcoholic beverages are made from maize.

**Rice.**—The grain of *Oryza sativa*, of which there are many varieties.

Rice is most largely used of all the cereals; it has a constipating tendency.

The albuminoid constituents of the cereals are various. Gluten from wheaten flour is insoluble. Cerealin is a soluble nitrogenous principle in bran; it acts as a ferment rendering starch soluble, and when present in flour makes the dough unsuitable for bread making. In spite of this fact, however,

a recurrent agitation in favour of "whole meal" is in existence.

Barley, rye, oat, and maize flours contain soluble albuminoids, and yield dough less tough and elastic than dough from wheat.

The following table shows the average % composition of the cereal grains:—

	Old Wheat.	Barley.	Oats.	Rye.	Maize.	Rice.
Water .. ..	11.1	12.0	14.2	14.3	11.5	10.8
Starch .. ..	62.3	52.7	56.1	54.9	54.8	78.8
Fat .. ..	1.2	2.6	4.6	2.0	4.7	0.1
Cellulose .. ..	8.3	11.5	1.0	6.4	14.9	0.2
Gum and Sugar	3.8	4.2	5.7	11.3	2.9	1.6
Albuminoids ..	10.9	13.2	16.0	8.8	8.9	7.2
Ash .. ..	1.6	2.8	2.2	1.8	1.6	0.9
Loss, &c. ..	0.8	1.0	0.2	0.5	0.7	0.4

## STARCHY FOODS—

**Tapioca.**—The starch from *Manihot utlissima* (Tropics). The starch is well washed, and is known as cassava starch.

Tapioca is made by moistening this, and drying it upon hot plates.

**Sago.**—The starch from *Metroxylon Sagu* and *M. Rumphii* (E. Archipelago). The trunks are cut up, and the pulp kneaded with *aq.*, and strained, and the starch allowed to deposit. The dried starch is mixed into a paste, and this is sieved. The grains, falling upon a hot pan, dry in a spherical form.

**Arrowroot.**—There are several kinds of starch under this name, all from tropical sources. W. Indian (*Bernuda*, S. Vincent) arrowroot from rhiz of *Maranta arundinacea*, E. Indian from *Curcuma angustifolia* and other spec. of C., *Canna edulis* and other spec. of C., *Tacca pinnatifida*, T. involucreata, *Zamia integrifolia*, and other spec. of T., *Arum maculatum*, A. *italicum*, *Alstromeria Lytu*, are plants from which this form of starch is obtained.



## SPICES AND CONDIMENTS—

Aniseed, Capsicum (Chillies), Caraway, Caradams, Chiretta, Cinnamon, Cloves (Cereph.), Coreander, Gentian, Ginger (Zingib.), Mustard, Nutmeg (Myrsic.), Mace, All-spice (Pimento), Vanilla.—See Notes on Materia Medica.

**Cumin.**—The fruit of Cuminum Cuminum from Sicily and Malta. Cont. cuminol (cumin aldehyde). Sometimes used in curry powder.

**Galangal.**—The root of Galanga officinarum. Loc. S. China. Cont. a pungent principle allied to that of ginger.

**Pepper.**—This name is widely applied. For Piper nigrum, see p. 38. White pepper is from the same plant; the seeds, used being ripper and the black pericarp removed. Long pepper is from Piper longum (L. Archip.) and P. officinarum (L. Indies).

**Soy** is prepared from the beans of Soja hispida by the Chinese, and is the base of many popular sauces.

## BEVERAGES—

**Tea.**—The leaves of Thea chinensis (China) and T. assamica (Assam) cont. an alkaloid theine (caffeine).

**Coffee.**—The seeds of Coffea arabica, C. liberica, and other species cont. caffeine.

**Cocoa** is made from the seeds of Theobroma Cacao, which are divested of husks, ground, pressed, &c. Cont. oil of Theobroma, q.v.; also an alkaloid theobromine allied to caffeine.

## PHARMACEUTICAL PREPARATIONS, B.P.

(Arranged alphabetically.)

The figures in brackets give the number of official preparations.

**Aceta, Vinegars** (3).—Solutions of medicines in vinegar or acetic acid.

**Alkaloidea, Alkaloids**.—Organic bases (compound ammonias). See Notes on Mat. Med., Definite Substances.

**Aquæ, Waters** (16).—Solutions (with 4 exceptions) of volatile oils in water.

**Cataplasma, Cataplasms or Poultices** (6).

**Chartæ, Papers** (2).

**Collodia, Collodions** (3).

**Confectiones, Confections, Electuaries, or Conserves** (8).  
Soft pastes containing the drug mixed with honey or sugar.

**Decocta, Decoctions** (13).—Solutions of the active part of the drug, made by boiling, usually for 10 to 20 minutes.

**Emplastra, Plasters** (14).—Adhesive substances spread upon leather or cloth.

**Enemata, Enemas** (5).—Preparations for injection into the rectum.

**Essentiæ, Essences** (2).—Strong solutions of vol. oils, in R.S.V. (1 in 4).

**Extracta, Extracts** (34).—Preparations of the soluble parts of plants obtained by extraction and evaporation to a paste condition. *Liquid extracts* are similar preparations, but are not evaporated to the same extent.

**Glycerina, Glycerines** (9).—Solutions in glycerol.

**Infusa, Infusions** (28).—Preparations made by pouring boiling water on the drug.

**Injectiones Hypodermicæ, Hypodermic Injections** (3).—Strong solutions for subcutaneous injection.

**Lamellæ, Gelatine Discs** (3).—Thin discs of gelatine with some glycerol, each weighing about  $\frac{1}{3}$  gr., chiefly for administration to the eye.

**Linimenta, Liniments or Embrocations** (16).—Preparations for local application; the base is usually olive oil, and camphor is added in most cases to diminish the risk of *internal* application.

**Liquores, Solutions** (48).—Solutions in water, with or without other solvents.

**Mellita, Honey's** (4).—Preparations in which honey is the vehicle.

**Misturæ, Mixtures** (10).—Mixtures of insoluble substances with water; gum, &c., being sometimes used to cause suspension.

**Mucilagines, Mucilages** (3).—Thick solutions, partial or complete, of gum or starch, with heavy powders in suspension.

**Olea, Oils, Fixed** (9), Volatile (25).—V. pp. 193 and 196.

**Oleata, Oleates** (2).—Solutions of bases in oleic acid. In a general chemical sense an oleate is any salt of oleic acid.

**Oleoresinæ, Oleoresins** (1).—Mixtures of volatile oil and resin.

**Oxymel.**—V. **Mellita**.

**Pilulæ, Pills** (21).—Small spherical masses usually weighing not more than 5 grains.

**Pulveres, Powders** (15).—Preparations containing two or more substances mixed together in a pulverised condition. The fineness of powders is indicated by figures expressing the number of wires per linear inch in the sieve through which they have been passed.

**Resinæ, Resins** (5).—Resins are amorphous, brittle solids, of acid character, resulting from the oxidation of Terpenes ( $C_{10}H_{16}$ ).

**Spiritus, Spirits** (18).—Solutions of ethers or vol. oils in alcohol. The term includes Spir. Vin. Rect. and Spir. Ten.

**Suppositories**, *Suppositories* (8).—Small conical masses, usually having cocoa butter as basis, for introduction into the rectum.

**Succi**, *Juices* (8).—The fresh juices of plants, with or without spirit added to preserve.

**Syrupi**, *Syrups* (17).—Strong solutions of cane sugar, containing medicinal substances.

**Tabellæ**, *Tablets* (1).—Tablets of chocolate containing the drug.

**Tincturæ**, *Tinctures* (72).—Solutions of active principles in spirit; proof or rectified spirit being employed, according as it is the better solvent.

**Trochisci**, *Lozenges* (11).—Small flat and hard substances consisting chiefly of sugar, intended for administration by the mouth.

**Unguenta**, *Ointments* (43).—Admixtures of medicines with fatty substances for external application; the fat may be lard, bees'-wax, and almond oil, or the semi-solid residues from American petroleum.

**Vapores**, *Vapours* (6).—Preparations for the application of volatile drugs to the air passages.

**Vina**, *Wines* (10).—Preparations similar to tinctures, sherry or orange wine being used instead of spirit.

### Aceta, Vinegars.

**Acetum**.—V. p. 52.

**Acetum Cantharidis**.—Canth., 1 p.; Ac. Acet. Gl., 1 fl. p.; Ac. Acet., 10 fl. p. or q.s. Mix 13 fl. p. of the Ac. Acet. with the Ac. Acet. Gl. and dig. Canth. for 2 hours at 93°-30° C. (200° F.). percolate when cool, finally with 5 fl. p. of Ac. Acet. Squeeze residue and filter the expressed liquid, mix the two liquids, and add Ac. Acet. to 10 fl. p. Sp. gr. about 1·06.

**Acetum Scillæ**.—Squill, brsd., 1 p.; Ac. Acet. Dil., 8 fl. p.; mac. squill in acid 7 days, strain with expression, filter. Sp. gr. about 1·038. **Dose**, 15 to 40 m, '9 to 2·4 c.c.

Table showing the Aquæ (Waters) of the B.P.

Name.	Quantity of		Dose.	Remarks.
	Drug.	Water.		
Aq. Anethl ..	1 lb.	2 gall.	† to 2 fl. 3; 14 to 57 c.C.	Distil 10 gallons.
" Anisi ..	"	"	" — "	"
" Aurant. Flor.	—	—	" — "	The comb. distlld. aq. of sw. and bt. orange flowers.
" Camphoræ..	† oz.	1 gall.	1 to 2 fl. 3; 28 to 57 c.C.	Mac. 2 days; use Aq. Dest.; submerge camp.
" Carui ..	1 lb.	2 gall.	† to 2 fl. 3; 14 to 57 c.C.	Distil 1 gallon.
" Chlorof. ..	1 fl. 3	25 fl. 3.	" "	Shake till dissolved; use Aq. Dest.
" Cinnam. ..	20 oz.	2 gall.	" "	Distil 1 gallon.
" Fœnic. ..	1 lb.	"	" "	"
" Laurocer. ..	"	2† pnt.	" 5 to 30 m	Chop, crush lvs.; dist. 1 pnt.; make 1 % HCy.
" Menth. Pip.	1† fl. 3	1† gall.	† to 2 fl. 3; 14 to 57 c.C.	Distil 1 gall.; use Ol. Men. Pip.
" " Vir.	"	"	" "	Distil 1 gall.; use Ol. Men. Vir.
" Pimentæ ..	14 oz.	2 gall.	" "	Distil 1 gallon.
" Rose ..	10 lbs.	5 "	" "	" "
" Sambuci ..	"	5 "	" "	" "

NOTE.—Besides these there are Aqua and Aq. Dest.; of the rest all, except Aq. Chlorof. and Aq. Laurocer., are water with .1 % of vol. oil in solution.

Cataplasmata, *Poultices*, B.P.

Made without linseed meal.

## Cataplasma—

*Fermentf.* Beer yeast, 3 p.; wheat flour, 7 p.; aq., 3 fl. p.; mix yeast with aq. at 37° 8° C. (100° F.) and stir in flour, leaving mass near fire to rise.

Made with linseed meal.

*Carbonis.* Wood charcl., 1 p.; bread crumb, 4 p.; lin. ml., 3 p.; boilg. aq., 20 fl. p.; mac. bread in aq. for 10 min., stir in lin. gradually; mix in  $\frac{1}{4}$  the char. and sprinkle remainder on surface.

*Conil.* Suc. Conii, 1 fl. p.; lin. ml., 4 p.; boilg. aq., 10 fl. p.; evap. Suc. to  $\frac{1}{4}$  vol., add this to mixed meal and aq.

*Lini.* Lin. ml., 2 p.; boilg. aq., 5 fl. p.; stir in meal gradually.

*Sinapis.* Mustard in fine powd., 2½ oz.; lin. ml., 2½ oz.; mix must with 2 or 3 fl.  $\frac{3}{4}$  of lukewarm aq., meal with 6 or 8 fl.  $\frac{3}{4}$  of boilg. aq.; add former to latter, and stir.

*Sode Chlorin.* Liq. Sod Chl., 1 fl. p.; lin. ml., 2 p.; boilg. aq., 4 fl. p.; mix meal with aq., stir in Liq. Sod. Chl.

**NOTE.**—Used to apply moisture and warmth, or medicaments; Cat. Conii to relieve pain, Cat. Lin. to stimul. skin, Cat. FERM. & Cat. Sod. Chl. to remove fecor, or as disinfectants.

Chartæ, *Papers*, B.P.

*Charta epispastica, Blistering paper.* White wax, 1 oz. or 16 p.; Spermaceti, 1½ oz. or 6 p.; Olive oil, 2 fl.  $\frac{3}{4}$  or 8 fl. p.; Resin,  $\frac{3}{4}$  oz. or 3 p.; Canada bals.,  $\frac{1}{4}$  oz. or 1 p.; Canthard. (powd.), 1 oz. or 4 p.; Aq. Dest., 6 fl.  $\frac{3}{4}$  or 24 fl. p.

Digest all, except Can. bals., in aq. bath for 2 hrs. with constant stirring, strain and separ. from aq. liqd.; melt plaster, add Can. bals., and coat one side of paper (ruled in sq. in.).

*Charta Sinapis, Mustard paper.* Mustard powd., 1 oz.; Liq. Gutta Percha, 2 fl. oz. or suff. Mix and coat paper on one side, allow to dry in air.

**NOTE.**—Chartæ are used to produce rubefaction or vesication.

**Collodia, Collodions, B.P.**

Collodium. Pyroxylin, 1 p.; ether, 36 p.; R. Splr., 12 fl. p.; mix ether and R. S., diss. Pyrox., decant.

C. Flexile. Collod., 48 p.; Tereb. Can., 2 p.; Ol. Ric., 1 p.; min.

C. Vesicans. Blisterg. liqd., 20 fl. p.; Pyrox., 1 p.: shake till dissolved.

NOTE.—Keep Coll. and C. Flex. in well-corked bottle; C. Ves. in stopd. do., B.P.

**Confectiones, Confections, Electuaries, or Conservees, B.P.**

Confectio Aromatica, *Pule. Cret. Arom.* Cinnam. brk., 4 p.; nutmeg, 3 p.; saffron, 3 p.; cloves, 1½ p.; coriand. seeds, 1 p.; sug., 25 p.; prepd. chalk, 11 p.; all in powd.: mix and sieve. **Dose, 10 to 60 gr.,** 6 to 4 G.

C. Opil. Pulv. Op. Co., 1 p.; syrup, 3 p.: mix. **Dose, 5 to 20 gr.,** 3 to 13 G.

C. Piperis. Black pepper, 2 p.; caraway frt., 3 p.; clar. honey, 15 p.: rub together. **Dose, 60 to 120 gr.,** 4 to 8 G.

C. Ros. Can. Hips (frt. remvd.), 1 p.; sug., 2 p.: pulp hips, sieve, add sugar, rub together.

C. Ros. Gall. Frsh. pet., 1 p.; sug., 3 p.: pulp pet., add sug., rub together.

C. Scammonil. Scam. Resn., 48 p.; ginger, 24 p.; both powd.; oil caraway, 2 fl. p.; oil cloves, 1 fl. p.; syr., 48 fl. p.; clar. honey, 24 p.: rub powd., syr., honey, together; add oils, and mix. **Dose, 10 to 30 gr.,** 6 to 2 G.

C. Senna. Senna, 7 p.; coriand. frt., 3 p.; both powd.; figs, 12 p.; tamarnd., 9 p.; cass. plp., 9 p.; prunes, 6 p.; Ext. Glycy., 1 p.; sug., 30 p.; Aq. Dest., to 75 p.: boil figs, prunes, with 24 p. Aq. Dest. for 4 hrs., make up loss of

aq., mix in taurnd., cass. plp., digest 2 hrs., sieve; to pulp add sug. and Ex. Gly., diss. by heat, add powd.; mix, make 75 p. with aq. **Dose, 60 to 120 gr.**, 4 to 8 G.

C. Sulphuris. Sulph. Subl., 4 p.; HK $\bar{I}$ , 1 p., powd.; Syr. Aurant., 4 fl. p.; tragac. powd.,  $\frac{1}{4}$  p.; rub together. **Dose, 60 to 120 gr.**, 4 to 8 G.

C. Terebinth. Oil turp., 1 fl. p.; Glyc. Rad., 1 p., powd.; clar. honey, 2 p.; rub first 2, add honey, mix. **Dose, 60 to 120 gr.**, 4 to 8 G.

NOTE.—Confections are soft pastes, convenient for giving bulky or evil-tasting drugs. The conf. of roses are merely vehicles.

### Decocta, *Decoctions*, B.P.

#### Decoctum—

Aloes Co. Ext. Al. Soc., 2 p.; myrrh, saffron, pot. carb., 1 p. ea.; Ext. Gly., 8 p.; Tr. Card. Co., 60 fl. p.; Aq. Dest., to 200 fl. p.; powd. Al. and myrrh; mix; add pot. carb., Ext. Gl., and Aq. Dest. (80 fl. p.); boil 5 min.; add salt, cool, add Tr. Card. Co., mac. 2 hrs.; strain, make 200 fl. p. with Aq. Dest **Dose, 1/2 to 2 fl. 3**, 14 to 28 c.c.

Cetraiva. Cetr., 1 p.; Aq. Dest., 20 fl. p.; wash moss in cold aq., boil with Aq. Dest. 10 min.; strain bot, Aq. Dest. 20 fl. p. **Dose, 1 to 4 fl. 3**, 28 to 113 c.c.

Cinchona. Cinch. Rub. Cort.,  $1\frac{1}{4}$  p., 20 powd.; Aq. Dest, 20 fl. p. boil 10 min., strain cold, aq. to 20 fl. p. **Dose, 1 to 2 fl. 3**, 28 to 57 c.c.

Granati Rad. Gran. Rad. Cort., 2 p., sliced; Aq. Dest., 40 fl. p.; boil to 20 fl. p., strain, Aq. Dest. to 20 fl. p. **Dose, 2 to 4 fl. 3**, 57 to 113 c.c.

Hamatox. Logwood chips, 1 oz.; Cinnam. Cort., 55 gr.; Aq. Dest., 1 pint; boil log. in Aq. Dest. 10 min., addg. cinnam. towards end; strain, aq. to 1 pint.

Hordel. Hord. Decort., 2 p.; Aq. Dest., 30 fl. p.; wash Hord. in cold aq. (rej. washgs.), boil with Aq. Dest. 20 min., strain. **Dose, 1 to 4 fl. 3**, 28 to 113 c.c.



## Decoctum—

Papaver. Pap. Cap. brsd., 2 p.; Aq. Dest., 30 fl. p.; boil 10 min., strain, aq. to 20 fl. p. **Dose, ad lib.**, for ext. use.

Pareire. Par. Rad., 1½ p.; Aq. Dest., 20 fl. p.; boil 15 min., strain, aq. to 20 fl. p. **Dose, 1 to 2 fl. 3**, 25 to 57 c.c.

Quercus. Oak brk. brsd., 14 p.; Aq. Dest., 20 fl. p.; boil 10 min., strain, aq. to 20 fl. p. **Dose, 1 to 2 fl. 3**.

Sarsa. Jam. Sarsap. cut transv., 2½ p.; boilg. Aq. Dest., 30 fl. p.; digest 1 hr., boil 10 min., cool, strain, aq. to 20 fl. p. **Dose, 2 to 10 fl. 3**, 57 to 253 c.c.

Sarsa Co. Jam. Sars. cut transv., 2½ p.; Sassaf. Rad. chips Guaiac. Lig. turngs., Glycy. Rad. drd. brsd., of ea. 4 p.; Meyer. Cort., 3 p.; boil. Aq. Dest., 30 fl. p.; digest solids in Aq. Dest. 1 hr., boil 10 min., cool, strain, aq. to 20 fl. p. **Dose, 2 to 10 fl. 3**, 57 to 283 c.c.

Scoparii. Broom tops, drd. 1 p.; Aq. Dest., 20 fl. p.; boil 10 min., strain, pour Aq. Dest. through strainer to 20 fl. p. **Dose, 2 to 4 fl. 3**, 57 to 113 c.c.

Taraxacl. Tarx. Rad. drd. sliced. brsd., 1 p.; Aq. Dest., 20 fl. p.; boil 10 min., strain, aq. to 20 fl. p. **Dose, 2 to 4 fl. 3**, 57 to 113 c.c.

NOTE.—Boiling should be done in covered vessel, and the Aq. Dest. used to make up vol. is poured through the drugs in the strainer. Prolonged boiling would in many cases alter the decoct., or make it inert.

## Emplastra, Plasters, B.P.

## Emplastrum—

Ammoniaci, c. Hydrargyro. Ammonc., 656 p.; Hg. 164 p.; olive oil, 7 p.; Sulp. Subl., 1 p. heat oil, add S, stir till they unite; trit. Hg with mixt., liquefy amm. and add; mix.

Belladonna. Ext. Bellad. Alcob., 1 p.; resin and soap plast., of ea. 2 p.; melt plast., add extract; mix.

Calcfaciens (warming). Canthar. powd., Ol. Myrist. Exp., Cera Fl., resin, of ea. 1 p.; Emp. Res., 13 p.; Emp. Sap., 8 p.; boilg. aq., 5 fl. p.; infuse canth. 6 hrs., squeeze through calico, evap. liq. to 1rd; add other ingred., melt; mix.

## Emplastrum—

Cantharidis. Canthar. powd., 4 p.; Cera Fl., Sevum Prep., of ea. 2½ p.; Adeps Prep., 2 p.; resin, 1 p.: mix and liqfy. wax, suet, fats, add melted resin; add canth., stir till cold.

Ferri.  $\text{Fe}_2\text{O}_3$ , 1 p.; Pix Burg, 2 p.; Emp. Plumb., 8 p.: melt plast. and pitch, add oxide; stir till cool.

Galbani. Galb., Ammonc., Cera Fl., of ea. 1 p.; Emp. Plumb., 8 p.: melt Galb., Anm., strain and add to plast. and wax, also melted; mix.

Hydrag. Hg, 164 p.; olive oil, 7 p.; Sulp. Subl., 1 p.; Emp. Plumb., 328 p.: diss. S in hot oil, add Hg and trit., add melted plas.; mix.

Opii. Op. powd., 1 p.; Emp. Res., 9 p.: add Op. to melted resin by degrees; mix.

Picls. Pix Burg., 26 p.; Thus. Amer., 13 p.; resin, Cera Fl., of ea. 4½ p.; Ol. Myrtis. Ex., 1 p.; olive oil, aq., of ea. 2 fl. p.: add aq. and oils to others prev. melted; evap., stirring.

Plumbi.  $\text{PbO}$ , 5 p.; olive oil, 10 p.; aq., 5 p.: boil, simmer 4 or 5 hrs., adding aq. if necessary.

Plumb. Iod.  $\text{PbI}_2$ , 1 p.; Emp. Plumb., 8 p.; resin, 1 p.: add  $\text{PbI}_2$  to others, melted at low temp.; mix.

Resinae. Resin, 2 p.; Emp. Plumb., 16 p.; Sapo Animl., 1 p.: add liqfd. resin and soap to melted plas.; stir.

Saponis. Sapo Animl., 6 p.; Emp. Plumb., 36 p.; resin, 1 p.: make as Emp. Res.

Sap. Fusc. Sapo Animl. powd., 10 p.; Cera Fl., 12½ p.; olive oil, 20 fl. p.;  $\text{PbO}$ , 15 p.; Acetum, 160 fl. p.: diss.  $\text{PbO}$  in Acet., stirring; add soap; boil till aq. mostly gone, add oil and wax melted together; stir till proper thickness.

NOTE.—Emp. Plumb. is used as basis, and to cover slight wounds; Emp. Res., for worse wounds; Emp. Bellad. and Emp. Op., to lessen pain; Emp. Canthar., for vesicatin.; others for support or gentle stimulation.

**Enemata, Enemas, Injections, or Clysters, B.P.****Enema—**

Aloes, 40 gr.; pot. carb., 15 gr.; Muc. Amyli, 10 fl. ʒ; mix and rub together.

Asafetide, Asaf., 30 gr.; Aq. Dest., 4 fl. ʒ; ad aq. gradually to asaf., rubbing to emulsion.

Magnes. Sulphat. Mg. sulph., 1 oz.; Ol. Oliva, 1 fl. ʒ; Muc. Amyli, 15 fl. ʒ; diss. salt in muc., add oil, and mix.

Opil. Tr. Op.,  $\frac{1}{2}$  fl. ʒ; Muc. Amyli, 2 fl. ʒ; mix.

Terebinta. Ol. Ter., 1 fl. ʒ; Muc. Amyli, 15 fl. ʒ; mix.

**Essentiæ, Essences, B.P.**

Essentia Anisi. Ol. An., 1 fl. p.; R.S.V., 1 fl. p.: mix.  
**Dose, 10 to 20** m., .59 to 1.2 c.c.

Essentia Menth. Pip. Ol. M. Pip., 1 fl. p.; R.S.V., 4 fl. p.: mix.  
**Dose, 10 to 20** m., .59 to 1.2 c.c.

**Extracta, Extracts, B.P.***Evaporations to be conducted by water-bath.***Extractum—**

Aconiti. Ac. Fol., 112 lbs.; bruise, press out juice, heat to 54.4° C. (130° F.), remove green water by straining through calico, heat to 93.3° C. (200° F.), and filter; evap. to thin syrup, sieve green colgr. matter from calico and add to syrup, stir whole and evap. not above 60° C. (140° F.) to pill consist. **Dose, 1/4 to 1 gr., .015 to .065 G.**

Aloes Barbadosensis. Al. B. in fragments, 1 lb.; Aq. Dest. boileg., 1 gall.; mix, pour off clear liqd. after 12 hr., and strain remainder, evap. mixed liqds. to dryness by warm air. **Dose, 2 to 6 gr., .13 to .4 G.**

## Extractum—

**Albes Soc.** Al. S. in fragments, 1 lb.; Aq. Dest. boilg., 1 gall.; mix, pour off clear liqd. after 12 hrs. and strain; evap. mixed liqds. to dryness by warm air. **Dose, 2 to 6 gr.**, '13 to '39 gr.

**Anthemidis.** Chambl. Flws., 1 lb.; Ol. Anthem., 15 m.; Aq. Dest., 1 gall.; boil flws. with aq. to  $\frac{1}{2}$  vol., strain, press, filter; evap. to pill consist. on aq. bath, adding oil at end of process. **Dose, 2 to 10 gr.**, '13 to '65 G.

**Belaë Liq.** Bael frt., 1 lb.; Aq. Dest., 12 pints; S.V.R., 3 fl. 3.; mac. 12 hrs. in  $\frac{1}{3}$  of aq., pour off and repeat twice again for 1 hr.; press marc. and filter mixed liqrs. through flannel, evap. to 14 fl. 3., add spir. when cold. **Dose, 1 to 2 fl. 3.**, 3'5 to 7'1 c.c.

**Belladonna.** Belldn., fresh, 112 lbs. Treat exactly as for Ext. Aconiti. **Dose,  $\frac{1}{4}$  to 1 gr.**, '015 to '065 gr.

**Calumbæ.** Calumb. rt., cut small, 1 lb.; Pr. Spir., 4 pints; mac. rt. with  $\frac{1}{2}$  the spir. 12 hrs., strain, press; repeat with remaining spir.; mix and filt. liqds., distil off spir., evap. residue by aq. bath to pill consist. **Dose 2 to 10 gr.**, '13 to '65 G.

**Cannab. Ind.** Ind. hemp, coarse powd., 1 lb.; S.V.R. 4 pints; mac. 7 dys., press out tr.; distil off spir., evap. residue to soft extract. **Dose  $\frac{1}{4}$  to 1 gr.**, '015 to '065 G.

**Cascara Sag.** Cas. S., 40 powd., 1 lb.; Pr. Spir., Aq. Dest., of ea. q.s.; mac. powd. with 2 pints spir. in closed vessel 48 hrs.; percolate, finally using aq. to exhaustn. (or 3 pints), evap. to suitable consist. **Dose, 2 to 8 gr.**, '13 to '52 G.

**Cimicifuga Liq.** Cimicfg., 60 powd. 20 oz.; R.S.V., q.s.; mac. powd. with 2 pints spir. in closed vessel 48 hrs.; percolate with spir. to exhaustn.; reserve first 15 fl. 3 of percolate, evap. remainder to soft ext.; dissolve this in reserved poth., and make 20 fl. 3 with spir. **Dose, 3 to 30 m℥.**, '17 to 1'8 c.c.

**Cinchona Liq.** Red. Cinch. brk., 60 powd. 20 oz., Acid Hydrechl., 5 fl. 3.; Glycerin., 24 fl. 3.; S.V. R., Aq. Dest. of ea. q.s.; mix brk. with 5 pints aq. contg. the acid and glycerin. and mac. in covered vessel 48 hrs. fro-

## Extractum—

quently stirring, percolate, finally using aq. to 15 pints; evap. percolated liqd. not above 82° 2' C. (180° F.) to 25 fl. 3; estimate alkld. present and adjust till 5 grns. of alkld. and 12·5 grs. of R.S.V. are contd. in 100 fl. gr. of extract. **Dose, 5 to 10 m., '29 to '59 c.C.**

**Coca** Liq. Coca, 40 powd., 20 oz.; Pr. Spir. q. s.; mix Coca with 2 pints spir. and mac. in closed vessel 48 hrs., perc. with spir. till coca exhausted; reserve first 15 fl. 3 and evap. remainder to soft extract, diss. this in reserved portn. and make 20 fl. 3 with spirit. **Dose, 1/2 to 2 fl. 3, 1·78 to 7·1.**

**Colchici.** Fresh Col. corms, decorticated, 7 lbs.; crush, press out juice; heat *cleared* liqr. to 100° C. (212° F.), strain and evap. not above 71° 1' C. (160° F.) to pill consist. **Dose, 1/2 to 2 gr., '032 to '13 G.**

**Colech.** Acet. Corms as above 7 lbs.; Acid. Acet. 6 fl. 3; crush, add acid, and press, then treat as above. **Dose, as Ext. Col.**

**Colocynth.** Co. Col. Pulp., 6 oz.; Ext. Aloes Soc. 12 oz.; Scam. Res. 4 oz.; Sapo An., powd., 3 oz.; Cardam. Sem. finest powd., 1 oz.; Pr. Spir., 1 gall.; mac. Col. in spir. 4 dys., press out tr. and distil off spir.; add aloes, scam., and soap; evap. to pill consist., adding card. towards end. **Dose 3 to 10 grs., '18 to 65 G.**

**Conii.** Con. Fol., fresh, 112 lbs. Treat exactly as for Ext. Aconiti. **Dose 2 to 6 gr., '13 to '39 G.**

**Ergotæ Liq.** Ergot crshd., 1 lb.; Aq. Dest., 6 pints; R.S.V. 6 fl. 3; dig. erg. in 3/4 of aq. 12 hrs., draw off inf. and dig. with remaining aq.; press, strain mixed liqds. and evap. on aq. bath to 11 fl. 3, addg. spir. when cold; allow to stand 1 hr., filter. Product = 16 fl. 3. **Dose 10 to 30 m., '59 to 1·77 c.C.**

**Filicis Liq.** Male fern, coarse powd., 2 lbs.; ether, 4 pints or q. s.; perc. till ether passes colourless, evap. or distil off ether, and preserve oily Ext. **Dose, 15 to 30 m., '9 to 1·77 c.C.**

## Extractum—

*Gelsemii* Aleoh. Gels., 60 powd., 1 lb.; R.S.V., Aq. Dest. of ea. q. s.; mix Gels. with 2 pints spir., mac. in closed vessel 48 hrs.; percolate finally with aq. to 2 pints, evap. to suitable consistency. **Dose, 1/2 to 2 gr.**, '32 to '13 G.

*Gentiane*. Gen. rt., sliced, 1 lb.; Aq. Dest. boilg., 1 gall.; inf. 2 hrs., boil 15 min.; pour off, press, strain, and evap. to pill consist. **Dose, 2 to 10 grs.**, '13 to '65 G.

*Glycerrh*. Liq. rt., 20 powd., 1 lb.; Aq. Dest. 4 pints; mac. rt. with 4 aq. 12 hrs.; strain, press; mac. marc. with remaing. aq. 6 hrs.; strain, press; mix strained liqds.; heat to 100° C. (212° F.); strain through flannel; evap. on aq. bath to pill consist. **Dose, 5 gr. to 13**, '32 to 1'3 G.

*Glycerrh* Liq. Liq. rt., 20 powd., 1 lb.; Aq. Dest., 4 pints; R.S.V. q. s.; mac. rt. with 2 pints aq. for 12 hrs., strain, press; mac. marc. with remaing. aq. 6 hrs., strain, press; mix strained liqds.; heat to 100° C. (212° F.); strain through flannel; evap. on aq. bath till sp. gr. 1'16 when cold; add  $\frac{1}{8}$  vol. R.S.V.; filter after 12 hrs. **Dose, 1 fl. 3, 3'5 c.**

*Hamatoxyl.* Infuse fine chips 24 hrs. in 1 gall. Aq. Dest.; boil to 4; strain; evap. to dryness on aq. bath, stirrg. with wood. **Dose, 10 to 30 grs.**, '65 to 1'94 G.

*Hyoscyami*. Hyos., 112 lbs. Treat exactly as for Ext. *Aconiti*. **Dose, 5 to 10 gr.**, '32 to '65 G.

*Jaborandi*. Jab., 40 powd., 1 lb.; Pr. Spir., Aq. Dest., of ea. q. s.; mix Jab. with 2 pints spir.; mac. in closed vessel, 48 hrs.; percolate finally with aq. to 2 pints; evap. to suitable consistency. **Dose, 2 to 10 gr.**, '13 to '65 G.

*Jalapa*. Jal., coarse powd., 1 lb.; R.S.V., 4 pints; Aq. Dest. 1 gall.; mac. Jal. in spir. 7 dys.; press out tr.; tilt, and dist. off spir., leaving soft ext.; mac. residual Jal. in the aq. 4 hrs.; strain, and evap. by aq. bath to soft ext.; mix extracts, and evap. not above 60° C. (140° F.) to pill consist. **Dose, 5 to 15 gr.**, '32 to '97 G.

## Extractum—

*Krameria*. Rhät. rt., 40 powd., 1 lb.; Aq. Dest., q.s.; mac. 1t. in 1½ pint aq. 24 hrs.; percolate, addg. aq. till rt. exhausted or 12 pints have passed; evap. to dryness.

**Dose, 5 to 20 gr.,** .32 to 1 3 G.

*Lactuca*. Lact., 112 lbs. Treat exactly as for Ext. *Aconiti*.

**Dose, 5 to 15 gr.,** .32 to .97 G.

*Lupull.* Hop, 1 lb.; R.S.V., 14 pint; Aq. Dest., 1 gall. mac. 7 dys.; filt r, and distil off spir., leavg. soft ext.; boil residual hop with the aq. 1 hr.; press out, strain, and evap. liqd. by aq. bath to soft ext.; mix the two extracts; evap. not above 60° C. (140° F.) to pill consist.

**Dose, 5 to 15 gr.,** .32 to .97 G.

*Mezerei* Alk. Mez. brk., cut small, 1 lb.; R.S.V., 8 pints; ether, 1 pint; mac. brk. in 4 of spir. 3 dys., with freq. agitatu.; strain and press; again mac. with the remaing. spir. 3 dys., as before; strain and press; mix and filter strained liqds.; distil off most of spir., and evap. to soft ext.; mac. ext. with ether 24 hours, shaking frequently; decant off etherl. soln.; distil off most of ether, and evap. to soft ext.

*Nucis Vomica*. Nux, split, 1 lb.; R.S.V., 64 fl. 3; Aq. Dest., 16 fl. 3; heat seeds to 100° C. (212° F.) 3 hrs., then powder; mix spir. with aq., and add 1 pint of mixt. to seeds; mac. 12 hrs.; percolate, addg. another pint; perc. further with successive portns. of spir.; press marc, and add filt'd. liqd. from press to percolate; estimate total alkld. in the liquid, and take as much as contns. 1314 gr., distil off spir. and evap. by aq. bath to 2 oz. by wt. Ext. cont. 15% tot. alkld. **Dose, 1/2 to 2 gr.,** .032 to .13 G.

*Opil.* Opium, powd., 1 lb.; Aq. Dest., 6 pints; mac. opium successively three times with 2 pints aq. 24 hrs.; mix liqds.; strain, and evap. by aq. bath to 4 lb. by wt. **Dose, 1/2 to 2 gr.,** .032 to .13 G. Cont. 20 % morphine.

*Opil Liq.* Ext. Op., 1 oz.; Aq. Dest., 16 fl. 3; R.S.V., 4 fl. 3 mac. ext. in aq. 1 hr., with stirrg.; add spir.; filter (forms 1 pint). **Dose, 10 to 40 m.,** .59 to 2.36 c.c. Contg. 1 % morphine.

## Extractum—

Papaveris. Papav., 20 powd., no seeds, 1 lb.; R.S.V., 2 oz.; Aq. Dest. b flz., q.s.; mix capsls. with 2 pints aq.; infuse 24 hrs., with stirrg.; percolate with more aq. to exhaustn. or abt. 1 gall.; evap. by aq. bath to 1 pint, and when cold add spir.; filt. after 12 hrs., and evap. by aq. bath to pill consist. **Dose, 2 to 5 gr.,** '13 to '32 G.

Pareira. Par. rt., 40 powd., 1 lb.; Aq. Dest., boilg., q.s.; Dig. rt. with 1 pint aq.; percolate with more aq. to exhaustn., or 1 gall.; evap. by aq. bath to pill consist. **Dose, 10 to 30 gr.,** '65 to 1'9 G.

Pareira Liq. Ext. Par., Aq. Dest., R.S.V., of ea. q.s.; mix spir. 1 fl. p. with aq. 3 fl. p. and diss. 4 pints of ext. in q.s. of this to form 16 fl. p.; filter. **Dose, 1/2 to 2 fl. 3,** 1'7 to 7'1 c.G.

Physostg. Phys., 40 powd., 1 lb.; R.S.V., 4 pints: mac. 48 hours, with 1 pint spir., in closed vessel, with agitn.; percolate with remaing. spir.; press, and mix liqds.; filt., distil off most of spir., and evap. to soft extract. **Dose, 1/16 to 1/4 gr.,** '001 to '015 G.

Quassia. Quas., rasped, 1 lb.; Aq. Dest., q.s.; mac. with 8 fl. 3 aq. 12 hrs.; percolate with more aq. to exhaustn.; evap.; filter before too thick, and again evap. by aq. bath to pill consist. **Dose, 3 to 5 gr.,** '19 to '32 G.

Rhamni Frang. Rh. F., 40 powd., 1 lb.; Pr. Spir., aq., of ea. q.s.; mac. with 2 pints spir. in closed vessel 48 hrs.; percolte. finally with aq. to exhaustn., or 3 pints; evap. to suitable consistency. **Dose, 15 to 60 gr.,** 1 to 3'9 G.

Rhamni Frang. Liq. Rh. F., coarse powd., 1 lb.; R.S.V., 4 fl. 3; Aq. Dest., q.s.; boil in successive quantities of aq. to exhaustn.; evap. by aq. bath to 12 fl. 3; add spir. when cold; filter after some hrs., and add aq. to 16 fl. 3. **Dose, 1 to 4 fl. 3,** 3'5 to 18'7 c.G.

Rhei. Rh. 1 lb.; Pr. Spir., Aq. Dest., of ea. q.s.; mac. rhub. with 3 pints spir. in closed vessel 48 hrs., percolate finally with aq. to exhaustn., or 5 pints; evap. by aq. bath to pill consist. **Dose, 5 to 15 gr.,** '32 to '97 G.



## Extractum—

Sarsa Liq. Jam. Sars., 40 powd., 40 oz.; Pr. Spir., 2 pints; Steech. 5 oz.; Aq. Dest., 12 pints; mac. with spir. in closed vessel 10 dys., press out 20 fl.  $\bar{3}$  of liq., and set aside; mac. residue with aq. at 71° F. (160° F.) 16 hrs., strain, and express liq.; diss. the sugar on this; and evap. by aq. bath to 18 fl.  $\bar{3}$ ; mix the two liqds. and make 10 fl.  $\bar{3}$  with aq. **Dose, 2 to 4 fl.  $\bar{3}$ , 7-1 to 14-2 c.c.**

Stramonii. Stram. Sem., 40 powd., 1 lb.; ether 1 pint or q.s.; Aq. Dest., Pr. Spir., of ea. q.s.; percolate Stram. with ether previously washed with  $\frac{1}{2}$  pint aq.; reject ether and percolate with spir. to exhaustn.; distil off most of spir. and evap. residue by aq. bath to pill consist. **Dose,  $\frac{1}{4}$  to  $\frac{1}{2}$  gr., .016 to .032 G.**

Taraxaci. Dand. rt., fresh, 4 lb.; crush, express jce., allow this to deposit; heat to 100° C. (212° F.) 10 min.; strain; evap. not above 71° F. (160° F.) to pill consist. **Dose, 5 to 30 gr., .32 to 1.94 G.**

Taraxaci Liq. Dand. rt., dry, 20 powd., 40 oz.; Pr. Spir. 4 pints; Aq. Dest., q.s.; mac. with spir. in closed vessel 48 hrs.; press out 20 fl.  $\bar{3}$  and set this aside; mac. residue with aq. 48 hrs.; press out, strain, and evap. to 18 fl.  $\bar{3}$ ; mix liqds. and make 40 fl.  $\bar{3}$  with aq. **Dose,  $\frac{1}{4}$  to 2 fl.  $\bar{3}$ , .9 to 7.1 c.c.**

*Glycerina, Glycerines, B.P.*

Glyc. Acid. Carbol. Ac. Carb., 1 p.; glyc., 4 fl. p.; dissolve.

Glyc. Acid. Gallici. Ac. Gall., 1 p.; glyc., 4 fl. p.; diss. not above 100° C. (212° F.).

Glyc. Acid. Tannic. Ac. Tann., 1 p.; glyc., 4 fl. p.; diss. not above 100° C. (212° F.).

Glyc. Aluminis. Alum, powd., 1 p.; glyc., 5 fl. p.; diss. with gentle heat and pour off.

Glyc. Amyli. Starch, 1 p.; glyc., 5 fl. p.; Aq. Dest. 3 fl. p.; stir with heatg. to translucent jelly.

Glyc. Boracis. Borax, powd., 1 p.; glyc., 4 fl. p.; Aq. Dest., 2 fl. p.; dissolve.

Glyc. Plumb. Subacet. Ph. acet., 5 oz.; Ph. oxid., powd., 3½ oz.; glyc., 1 pint; Aq. Dest., 12 fl. 3; mix, boil ½ hr., filter, and evap. off aq.

Glyc. Traga-anthae. Trag. powd., 3 p.; glyc., 12 fl. p.; Aq. Dest., 2 fl. p.; mix trag. and glyc., add aq., and rub to translucent jelly.

### Infusa, Infusions, B.P.

*The Infusing or Macerating should be conducted in closed vessels.*

Infusum —

Anthemidis. Cham. flsrs., 1 p.; Aq. Dest., boilg., 20 fl. p.; inf. 15 min., strain. **Dose, 1 to 4 fl. 3, 28·4 to 113·6 c.c.**

Aurantii. Bitt. orange, pl., minced, 1 p.; Aq. Dest., boilg., 20 fl. p.; inf. 15 min., strain. **Dose, 1 to 2 fl. 3, 28·4 to 56·8 c.c.**

Aurantii Co. Bitt. orange pl., minced, 4 p.; fresh lemon pl., minced, 2 p.; cloves, brsd., 1 p.; Aq. Dest., boilg., 160 fl. p.; inf. 15 min., strain. **Dose, 1 to 2 fl. 3, 28·4 to 56·8 c.c.**

Bachu. Bachu lvs., brsd., 1 p.; Aq. Dest., boilg., 20 fl. p.; inf. ½ hr., strain. **Dose, 1 to 4 fl. 3, 28·4 to 113·6 c.c.**

Calumbae. Cal. rt., minced, 1 p.; Aq. Dest., cold, 20 fl. p.; mac. 4 hr., strain. **Dose, 1 to 2 fl. 3, 28·4 to 56·8 c.c.**

Caryophylli. Cloves, brsd., 1 p.; Aq. Dest., boilg., 40 fl. p.; inf. ½ hr., strain. **Dose, 1 to 4 fl. 3, 28·4 to 113·6 c.c.**

Cascuilla. Casc. brk., 20 powd., 1 p.; Aq. Dest., boilg., 10 fl. p.; inf. ½ hr., strain. **Dose, 1 to 2 fl. 3, 28·4 to 56·8 c.c.**

Catechu. Catechu, coarse powd., 5·3 p.; Cinn. brk., brsd., 1 p.; Aq. Dest., boilg., 149 fl. p.; inf. ½ hr., strain. **Dose, 1 to 2 fl. 3, 28·4 to 56·8 c.c.**

## Infusum—

Chiratae. Chirata, 1 p.; Aq. Dest., 48·9° C. (120° F.), 40 fl. p.; inf.  $\frac{1}{4}$  hr., strain. **Dose**, 1 to 2 fl.  $\bar{3}$ , 28·4 to 56·8 c.C.

Cinchona Acid. Red. Cinch. brk., 40 powd., 1 p.; Acid. Sulph. Arom., 4 fl. p.; Aq. Dest., boilg., 20 fl. p.; inf. 1 hr., strain. **Dose**, 1 to 2 fl.  $\bar{3}$ , 28·4 to 56·8 c.C.

Cusparia. Cusp. brk., 40 powd., 1 p.; Aq. Dest., 48·9° C. (120° F.), 20 fl. p.; inf. 1 hr., strain. **Dose**, 1 to 2 fl.  $\bar{3}$ , 28·4 to 56·8 c.C.

Cusso. Cusso, coarse powd., 1 p.; Aq. Dest., boilg., 16 fl. p.; inf. 15 min., do *not* strain. **Dose**, 4 to 8 fl.  $\bar{3}$ , 113·6 to 237·2 c.C.

Digitalis. Foxgl. lvs., drd., 1 p.; Aq. Dest., boilg., 156 fl. p.; inf. 15 min., strain. **Dose**, 2 to 4 fl.  $\bar{3}$ , 56·8 to 113·6 c.C.

Ergota. Ergot, crshd., 1 p.; Aq. Dest., boilg., 40 fl. p.; inf.  $\frac{1}{4}$  hr., strain. **Dose**, 1 to 2 fl.  $\bar{3}$ , 28·4 to 56·8 c.C.

Gentiana Co. Gent. rt., bitt. orange pl., of ea. 1 p.; frsh. lemon pl., 2 p.; Aq. Dest. boilg., 80 fl. p.; inf.  $\frac{1}{4}$  hr.; strain. **Dose**, 1 to 2 fl.  $\bar{3}$ , 28·4 to 56·8 c.C.

Jaborandi. Jab., minced, 1 p.; Aq. Dest., boilg., 20 fl. p.; inf.  $\frac{1}{4}$  hr.; strain. **Dose**, 1 to 2 fl.  $\bar{3}$ , 28·4 to 56·8 c.C.

Krameria. Rhat. rt., 40 powd.,  $\frac{1}{4}$  p.; Aq. Dest., boilg., 20 fl. p.; inf.  $\frac{1}{2}$  hr.; strain. **Dose**, 1 to 2 fl.  $\bar{3}$ , 28·4 to 56·8 c.C.

Linum. Linum, 3 p.; Liq. rt., 20 powd., 1 p.; Aq. Dest. boilg., 87 $\frac{1}{2}$  fl. p.; inf. 2 hrs.; strain.

Lupuli. Hop, 1 p.; Aq. Dest., boilg., 20 fl. p.; inf. 1 hr.; strain. **Dose**, 1 to 2 fl.  $\bar{3}$ , 28·4 to 56·8 c.C.

Matica. Mat. lvs., minced, 1 p.; Aq. Dest., boilg., 20 fl. p.; inf.  $\frac{1}{2}$  hr.; strain. **Dose**, 1 to 4 fl.  $\bar{3}$ , 28·4 to 113·6 c.C.

## Infusum—

Quassia. Quass. wd., chips, 1 p.; Aq. Dest., 80 fl. p.: mac.  $\frac{1}{2}$  hr.; strain. **Dose, 1 to 2 fl.  $\bar{3}$ , 2s. 1 to 56.8 c.C.**

Rhei. Rhub. rt., sliced, 1 p.; Aq. Dest., boilg., 40 fl. p.: inf.  $\frac{1}{2}$  hr.; strain. **Dose, 1 to 2 fl.  $\bar{3}$ , 2s. 4 to 56.8 c.C.**

Rose Acid. Red rose pet., drd., 2 p.; Acid Sulph. Dil., 1 fl. p.; Aq. Dest., boilg., 80 fl. p.; add acid to aq.: inf. pet.  $\frac{1}{2}$  hr.; strain. **Dose, 1 to 2 fl.  $\bar{3}$ , 2s. 4 to 56.8 c.C.**

Senega. Sen. rt., 20 powd., 1 fl. p.; Aq. Dest., boilg., 20 fl. p.: inf.  $\frac{1}{2}$  hr.; strain. **Dose, 1 to 2 fl.  $\bar{3}$ , 2s. 4 to 56.8 c.C.**

Senna. Senna, 2 p.; ginger, sled.,  $\frac{1}{2}$  p.; Aq. Dest., boilg., 20 fl. p.: inf.  $\frac{1}{2}$  hr.; strain. **Dose, 1 to 2 fl.  $\bar{3}$ , 2s. 4 to 56.8 c.C.**

Serpentina. Serp. rhiz., 20 powd., 1 p.; Aq. Dest., boilg., 40 fl. p.: inf.  $\frac{1}{2}$  hr.; strain. **Dose, 1 to 2 fl.  $\bar{3}$ , 2s. 4 to 56.8 c.C.**

Uva Ursi. Bearby. lvs., brsd., 1 p.; Aq. Dest., boilg., 20 fl. p.: inf. 1 hr.; strain. **Dose, 1 to 2 fl.  $\bar{3}$ , 2s. 4 to 56.8 c.C.**

Valeriana. Val. rhiz., brsd., 1 p.; Aq. Dest., boilg., 40 fl. p.: inf. 1 hr.; strain. **Dose, 1 to 2 fl.  $\bar{3}$ , 2s. 4 to 56.8 c.C.**

# **Injectiones Hypodermicæ, Hypodermic Injections,** B.P.

## Injectio—

Apomorph. Hypod. Apom. Hydrochl., 2 gr.; Aq. Camph., 100 m.; diss. and filter; use fresh. **Dose (hypod.), 2 to 8 m., .12 to .47 c.C.**

Ergotina. Hypoderm. Ergotin, 1 p.; Aq. Camph., 2 fl. p.: diss. by stirg. together; use fresh. **Dose (hypod.), 3 to 10 m., .17 to .59 c.C.**

## Injection—

Morphine Hypoderm. Morph. Hydrochl., 92 grs.; Liq. Ammon., Acid. Acet., Aq. Dist., of ea. q.s.; diss. morph. in 2 fl.  $\bar{3}$  of aq. with gentle heat; ppt. morph. with Liq. Am.; cool, filter, wash, drain, and diss. ppt. in abt. 1 fl.  $\bar{3}$  aq. and very slight excess of acid; add. aq. to 2 fl.  $\bar{3}$ .  
**Dose (hypod.), 1 to 5 m., '06 to '3.**

Lamellæ, *Gelatine Discs*, B.P.

## Lamellæ—

Atropina. Discs abt.  $\frac{1}{10}$  gr., '0013 G., and contg.  $\frac{1}{1000}$  gr., '000013 G., Atrop. Sulphat.

Cocaina. Discs abt.  $\frac{1}{10}$  gr., '0013 G., and contg. **1/200 gr.**, '00032 G., Coc. Hydrochl.

Physostil. Discs abt.  $\frac{1}{10}$  gr., '0013 G., and contg. **1/1000 gr.**, '000065 G., Physostigmina.

Linimenta, *Liniments*, B.P.

## Linimentum—

Aconiti. Acon. rt., 40 powd., 20 oz.; camph., 1 oz.; R.S.V., q.s.; mac. rt. with 20 fl.  $\bar{3}$  spir. 3 days, with agitatn., percolate with spir. into receiver contg. camph. to 30 fl.  $\bar{3}$ .

Ammonia. Liq. Am., 1 fl. p.; Ol. Oliva, 3 fl. p.; emulsify. Belladonna. Bellad. rt., 40 powd., 20 oz; camph., 1 oz.; R.S.V., q.s.; treat as for Lin. Aconiti.

Calceis. Liq. Calceis, 1 fl. p.; Ol. Oliva, 1 fl. p.; mix.

Camphora. Camph., 1 p.; Ol. Oliva, 4 fl. p.; diss. camph. in oil.

Camph. Co. Camph., 20 p.; Ol. Lavand., 1 fl. p.; Liq. Am. Fortr., 40 fl. p.; R.S.V., 120 fl. p.; diss. camph. and oil in spir.; add Liq. Am. gradually, shakg. till clear.

Chloroformi. Chlorfm., 1 fl. p.; Lin. Camph., 1 fl. p.; mix.

Crotonis. Ol. Crot., 2 fl. p.; Ol. Cajap., 7 fl. p.; R.S.V., 7 fl. p.; mix.

## Linimentum—

Hydrarg. Ung. Hydrarg., 1 p.; Liq. Ammon., 1 fl. p.; Lin. Camph., 1 fl. p.; mix Liq. Am. with  $\frac{1}{4}$  Lin. Camph.; rub Ung. with other part; mix.

Iodi. Iod., 5 p.; pot. iod., 2 p.; glycern., 1 p.; R.S.V., 40 fl. p.; diss. all in spir.

Opii. Tr. Op., 1 fl. p.; Lin. Sap., 1 fl. p.; mix and filter.

Pot. Iod. cum Sap. Curd soap, 16 p.; pot. iod., 12 p.; glycern., 8 fl. p.; Ol. Limon., 1 fl. p.; Aq. Dest., 80 fl. p.; diss. soap sbreds with aq. and gly. over aq. bath, and pour liq. on to pot. iod.; mix and trit. till cold; after 1 hr. rub with oil to a cream.

Saponis. Hard soap shavings, 16 p.; camph., 8 p.; Ol. Rosmar. 3 fl. p.; R.S.V., 128 fl. p.; Aq. Dest., 32 fl. p.; mix aq. with spir., and add others; mac. 7 dys. not above 21° C. (70° F.), with agitatu.; filter.

Sinapis Co. Ol. Sinapis, 1·4 fl. p.; Ext. Mezer. Eth., 1 p.; camph., 3 p.; Ol. Ric., 7 fl. p.; R.S.V., 44 fl. p.; diss. Ext. M. Eth. and camph. in spir., and add oils.

Terebinth. Soft soap, 2 p.; Aq. Dest., 2 fl. p.; camph., 1 p.; Ol. Tereb. 16 fl. p.; mix soap with aq.; diss. camph. in oil; rub together.

Terebinth Acet. Ol. Tereb., 4 fl. p.; Acid. Acet. Gl., 1 p.; Lin. Camph., 4 fl. p.; mix.

## Liquores, Solutions, B.P.

## Liquor—

Acid. Chrom. Chrom. acid, 1 p.; Aq. Dest., 3 fl. p.; dissolve, 1 fl.  $\frac{3}{4}$  cont. nearly 18 gr., or 25 %,  $\text{CrO}_3$ ; i.e. 29·5 %,  $\text{H}_2\text{CrO}_4$ .

Ammonia. Liq. Am. Fortr., 1 fl. p.; Aq. Dest., 2 fl. p.; mix 1 fl.  $\frac{3}{4}$  cont. 5·2 gr.  $\text{NH}_3$ .

Ammon. Fortr.  $\text{NH}_3$  dissolved in Aq. Dest. 1 fl.  $\frac{3}{4}$  cont. 15·83 grs.  $\text{NH}_3$ .

Ammon. Acet. Liq. Am. Ac. Fort., 1 fl. p., dissolved in Aq. Dest., 5 fl. p. **Dose, 2 to 3 fl.  $\frac{3}{4}$ , 7·1 to 21·3 c.c.**

## Liquor—

Am. Acet. Fortr. Am. Carb., crsbd.,  $17\frac{1}{2}$  oz.; Acid. Acet., 50 fl. 3, or q.s.; Aq. Dest., q.s.: diss. salt in 45 fl. 3 acid; add more acid till neutral; then aq. to 3 pints. **Dose, 25 to 75 m.**, 1.5 to 4.4 c.C.

Ammon. Citrat. Liq. Am. Citr. Fortr., 1 fl. p.; Aq. Dest. q.s. to make 4 fl. p.: mix. **Dose, 2 to 6 fl. 3**, 7.1 to 21.3 c.C.

Am. Citr. Fortr. Acid. Citr., 12 oz.; Liq. Am. Fortr., 11 fl. 3, or q.s.; Aq. Dest., q.s.: neutriz. acid with ammonia; add aq. to 1 pint. **Dose, 4 to 14 fl. 3**, 1.8 to 5.3 c.C.

Antim. Chlord. Ant. Nig. Pur., 1 pound; Acid. Hydrochl., 4 pints: boil the  $Sb_2S_3$  in acid 15 min.; filter; and boil down to 2 pints.

Arsenicalis. Acid. Arsenios., 87 gr.; pot. carb., 87 gr.; Tr. Lav. Co., 5 fl. 3; Aq. Dest., q.s.: mix arsenic and pot. carb., and diss. in 10 fl. 3 aq. by heatg.; cool; add Tr. and aq. to 1 pint. **Dose, 2 to 8 m.**, .059 to .47 c.C.

Arsen. Hydrochl. Acid. Arsenios., 87 gr.; Acid. Hydrochl., 2 fl. 3; Aq. Dest., q.s.: boil the acids and 4 fl. 3 aq. together to clear soln.; then add aq. to 1 pint. **Dose, 2 to 8 m.**, .059 to .47 c.C.

Arsen. et Hydrarg. Iodid. Arsen. Iod., Hydrarg. Iod. Rub., of ea. 45 gr.; Aq. Dest., q.s.: Trit. iodides with  $1\frac{1}{2}$  fl. 3 aq. till nearly all dissolved; filt., and wash with aq. to 10 fl. 3. **Dose, 10 to 30 m.**, .59 to 1.77 c.C.

Atrop. Sulphat. At. Sulph. 1 p.; Aq. Camph., 99 fl. p.: dissolve. **Dose, 1 to 4 m.**, .059 to .236 c.C.

Bismuthi et Am. Citrat. Bi. Citr., Liq. Am., of ea. 800 gr.; Aq. Dest., q.s.: rub citr. to paste with little aq.; add ammonia with stirrg. till salt dissolves; then aq. to 1 pint. **Dose, 1/2 to 1 fl. 3**, 1.7 to 3.55 c.C.

Calc. Chlorid. Ca Chl., 1 p.; Aq. Dest., 5 fl. p.: diss. and filter. **Dose, 15 to 50 m.**, .9 to 2.9 c.C.

Calcis. Sld. lime, 2 oz.; Aq. Dest., q.s.: wash lime with aq. till washgs. free from Cl; and then shake in closed vessel with 1 gall. aq.; use clear liqd. after 12 hours. **Dose, 1 to 4 fl. 3**, 28.4 to 113.6 c.C.

**Liquor—**

**Calc. Chlorint.** Ca Chlorint., 1 p.; Aq. Dest., 10 p.: trit. together; shake in closed vessel 3 hrs.; filter.

**Calc. Sacch.** Skd. line, 1 p.; Sacch. Alb., 2 p.; Aq. Dest., 20 p.: trit. together line and sugar; shake with aq. in closed vessel some hrs.; use clear liq. **Dose, 15 to 60 m., .9 to 3.5 c.c.**

**Chlori.** Acid. Hydrochl., 6 fl. 3; Antim. Oxid., 1 oz.; Aq. Dest., 34 fl. 3: evolve chlorine; wash the gas in 2 fl. 3 aq., and bubble it through remainder of aq. **Dose, 10 to 20 m., .59 to 1.18 c.c.**

**Epispasticus.** Canthar., powd., 5 oz.; Ether Acet., q.s.: mix Canth. with 3 fl. 3 ether; percolate finally the ether to 20 fl. 3.

**Ferri Acet.** Liq. Ferri Acet. Fortr., 5 fl. 3; Aq. Dest. q.s. to make 20 fl. 3: dissolve. **Dose, 5 to 30 m., .29 to 1.77 c.c.**

**Ferri Acet. Fortr.** Liq. Ferri Persulphat., 5 fl. 3; Liq. Amm., q.s.; Acid. Acet. Glac., liqld., 3 fl. 3; Aq. Dest., q.s.: mix 8 fl. 3 ammon. with 1 pint aq.; add iron soln., dild. with 1 pint aq., keeping ammon. in slight excess; wash pptd. iron hydrate till free from Cl.; and then diss. in acid, making up to 10 fl. 3 with aq.; pour off clear soln. **Dose, 1 to 8 m., .059 to 4.7 c.c.**

**Ferri Dialysat.** Liq. Ferri Perchlor. Fortr., 7 fl. 3; Liq. Amm., Aq. Dest., of ea. q.s.: mix 6 fl. 3 iron soln. with 2 pints aq., and add ammon. till slight odour; filter off and wash pptd. iron hydrate; squeeze the ppt. and add remainder of iron soln.; stir and warm, and dialyse the soln. so obtained; result should be 25 fl. 3. **Dose, 10 to 30 m., .59 to 1.77 c.c.**

**Ferri Perchlor.** Liq. Perchl. Fortr., 5 fl. 3; Aq. Dest., q.s. to make 20 fl. 3. **Dose, 10 to 30 m., .59 to 1.77 c.c.**

**Ferri Perchlor. Fortr.** Iron wire, 4 oz.; Acid. Hydrochl., 20 fl. 3; Acid. Nitric, 14 fl. 3; Aq. Dest., q.s.: diss. Fe in 124 fl. 3 Ac. Hyd. and 7 fl. 3 aq.; boil; filter; add 7 fl. 3 Ac. Hyd. and pour into Ac. Nit.; evap. till ppt. begins to form; then add 1 fl. 3 Ac. Hyd., and aq. to 174 fl. 3.



## Liquor—

Ferri Pernitralis. Fin. iron wire, 1 oz.; Ac. Nit., 4 fl. 3; Aq. Dest., q.s.; dil. acid with 16 fl. 3 aq., and in this diss. Fe.; filter; and add aq. to 1½ pints. **Dose, 10 to 40 m.**, 59 to 2·36 c.C.

Ferri Persulphat. Fe Sulphat., 8 oz.; Ac. Sulph., Ac. Nitric, of ea. 6 fl. 3; Aq. Dest., 12 fl. 3, or q.s.; diss. salt in the Sulph. Acid, mixed with 10 fl. 3 aq.; mix Ac. Nit. with 2 fl. 3 aq.; warm; and to this add the other soln.; boil till soln. becomes red; and when cold add aq. to 11 fl. 3.

Gutta Percha. G. P., shreds, 1 oz.; Chlorfm., 8 fl. 3; Pb Carb., fine powd., 1 oz.; diss. (G. P. in 6 fl. 3 chlorfm., add Pb Carb. and 2 fl. 3 chlorfm.; shake; let settle; and decant.

Hydrag. Nitrat. Acid. Hg 4 oz.; Ac. Nitric, 5 fl. 3; Aq. Dest., 14 fl. 3; mix acid and aq.; and diss. Hg in cold; boil 15 min. and cool; soln. should be 12 oz. by weight.

Hydrag. Perchlord. Hg Percbl., Am. Chlrd., of ea. 1 p.; Aq. Dest., 875 fl. p.: dissolve. **Dose, 1/2 to 2 fl. 3,** 1·77 to 7·1 c.C.

Iodl. I., 10 p.; pot. iod., 15 p.; Aq. Dest., q.s. to produce 200 fl. p.: dissolve.

Lithiæ Efferv. Li carb., 10 gr.; Aq., 1 pint: mix and aerate with CO<sub>2</sub> at 4 atmospheres. **Dose, 5 to 10 fl. 3,** 141 to 284 c.C.

Magnes. Carb. Mg sulphat., 2 oz.; sod. carb., 2½ oz.; Aq. Dest., q.s.; diss. salts separately in 4 pint aq.; heat Mg soln. to boil; add to it Na soln., and boil till CO<sub>2</sub> ceases to come off; wash ppt. till free from SO<sub>3</sub>; mix it with 1 pint aq., and aerate at 3 atmospheres 24 hrs.; filter; and pass CO<sub>2</sub> into filt. soln.; cont. abt. 2% (MgCO<sub>3</sub>), Mg (HO)<sub>2</sub>, 4H<sub>2</sub>O, or 10 gr. per fl. 3. **Dose, 1 to 2 fl. 3,** 25·4 to 56·8 c.C.

Magnes. Citrat. Mg carb., 100 gr.; Acid. Citric., 200 gr. Syr. Limon., 4 fl. 3; pot. bicarb., crys., 40 gr.; Aq. q.s.; diss. acid in 2 fl. 3 aq.; add Mg carb.; stir in dissolved; filter into strong ¼ pint bottle nearly full of aq.; add syr. and then pot. bicarb.; close and shake till

## Liquor—

pot. carb. dissolves. **Dose, 5 to 10 fl. 3.** 142 to 284 c.C.

Morphina Acetat. Morph. acet., 1 p.; Acid. Acet. Dil., 2 fl. p.; R.S.V., 24 fl. p.; Aq. Dest., 73 fl. p.; diss. Morph. acet. in mixt. of others. **Dose, 10 to 60 m.**, 59 to 3.44 c.C.

Morph. Bimeconat. Morph. Hydrochl., 9 gr.; Liq. Ammon., q.s.; Acid. Meconic., 6 gr.; R.S.V.,  $\frac{1}{2}$  fl. 3; Aq. Dest., q.s.; diss. Morph. Hyd. in 2 or 3 fl. 3 aq. by heatg.; add ammonia till ppt. ceases to fall; cool; filter; wash ppt. with aq. till free from Cl; drain; mix ppt. with aq. to 14 fl. 3; add spir. and acid, and dissolve. **Dose, 5 to 40 m.**, 3 to 2.4 c.C.

Morph. Hydrochlorat. Morph. Hyd., 1 p.; Acid. Hydrochl. Dil., 2 fl. p.; R.S.V., 24 fl. p.; Aq. Dest., 73 fl. p.; diss. Morph. Hyd. in mixt. of others. **Dose, 10 to 60 m.**, 59 to 3.44 c.C.

Plumbi Subacetat. Pb subacet., 5 oz.; Pb oxid., 3½ oz.; Aq. Dest., 1 pint or q.s.; boil acet. and oxide in aq.  $\frac{1}{2}$  hr., stirrg.; filter, and when cold add aq. to 1 pint. Cont. 24 %  $\text{Pb}_2\text{O}(\text{C}_2\text{H}_3\text{O}_2)_2$ .

Plumbi Subacet. Dil. Liq. Plumbi Subacet., R.S.V., of ea. 1 fl. p.; Aq. Dest., 79 fl. p; mix, filter.

Potassa. Pot. carb., 1 lb.; slaked lime, 12 oz.; Aq. Dest. 1 gall.: diss. carb. in aq., and add slaked lime, which is the result of washg. abt. 13 oz.  $\text{Ca}_2\text{H}_2\text{O}_2$ , to the boilg. soln.; boil 10 min., with stirrg.; siphon off clear liq. after settling. Cont. 5.81 %  $\text{KHO}$ . **Dose, 15 to 60 m.**, 9 to 3.55 c.C.

Potassa Efferv. Pot. bicarb., 30 gr.; Aq., 1 pint: dissolve, filter, and aerate with  $\text{CO}_2$  at 4 atmospheres.

Potass. Permang. Pot. perm., 1 p.; Aq. Dest., 99 fl. p.; dissolve. **Dose, 2 to 4 fl. 3.** 7.1 to 14.2 c.C.

Soda. Sod. carb., 28 oz.; slakd. lime, 12 oz.; Aq. Dest. 1 gall. Treat as for Liq. Potasse. Cont. 1.1 of NaHO.

**Liquor—**

Sodæ Chlorinat. Calx Chlorinat., 16 oz.; sod. carb., 24 oz.;

Aq. Dist., 1 gall.; diss. carb. in 2 pints aq.; trit. Ca. chl. with 6 pints aq., and filter. Mix solns.; filter. Cont. 24% avail. Cl. **Dose, 10 to 20 m.**, '59 to 1'18 c.c.

Sodæ Efferv. Sod. bicarb., 30 gr.; aq., 1 pint. Treat as for Liq. Pot. Efferv.

Sodii Arseniat. Na arsenat., dried not above 148'9° C. (300° F.), 1 p.; Aq. Dest., 99 fl. p.; dissolve. **Dose, 5 to 10 m.**, '3 to '59 c.c.

Sodii Ethylat. Na, scraped, 1 p.; absol. alcoh., 20 fl. p.; diss. Na in alcoh., keepg. cool. Cont. 19%  $\text{NaC}_2\text{H}_5\text{O}$ .

Strych. Hydrochl. Strych., crys., 1 p.; Acid. Hydchl. Dil., 2 fl. p.; R.S.V., 24 fl. p.; Aq. Dest., 73 fl. p.; mix acid with 4 fl. 3 aq., and diss. strychn. by heatg.; then add splr. and remainder of aq. **Dose, 5 to 10 m.**, '3 to '59 c.c.

Zinci Chlorid. Zn, granitd., 1 lb.; Acid. Hydrochl., 44 fl. 3; Liq. Chlori., q.s.; Zn. carb., 4 oz., or q.s.; Aq. Dest., 1 pint; mix acid and aq., and diss. Zn in mixt.; boil 4 hr., addg. aq. lost, and cool; remove Fe and Pb by first addg. Cl, and then Zn carb.; finally boil down to 2 pints.

**Lotiones, Lotions, B.P.**

Lotio Hydrarg. Flav. Hg perchlorid., 18 gr., or 1 p.; Liq. Calcis, 10 fl. 3, or 243 fl. p.; mix.

Lotio Hydrarg. Nig. Hg subchlorid., 30 gr., or 1 p.; Liq. Calcis, 10 fl. 3, or 146 fl. p.; mix.

**Mellita, Honey, B.B.**

Mel Boracis. Borax, fine powd., 2 p.; glycen., 1 p.; Mel Dep., 16 p.; mix.

Mel Depurat. Honey melted and strained through flannel while hot.

Oxymel. Mel Dep., 8 p.; Ac. Acet., 1 fl. p.; Aq. Dest., 1 fl. p.; melt honey and mix all. **Dose, 1 to 2 fl. 3.**, 3'5 to 7'1 c.c.

Oxymel Scillæ. Acet. Scillæ, 5 fl. p.; Mel Dep., 8 p.; mix and evap. by aq. bath to sp. gr., 1'32 (when cold). **Dose 1/2 to 1 fl. 3.**, 1'77 to 3'5 c.c.

## Mistura—

Misturæ, *Mixtures*, B.P.

Creasoti. Creas., 1 fl. p.; Acid. Acet. Gl., 1 fl. p.; Spir. Junip., 2 fl. p.; Syr., 32 fl. p.; Aq. Pist., 480 fl. p.; mix creas. and acid; add aq., lastly syr. and junip. **Dose, 1 to 2 fl. 3,** 28°4 to 56°8 c.C.

Cretæ. Calx Prep., 1 p.; Acac. Gum., 1 p.; Syrup, 2 fl. p. Aq. Cinnam., 36 fl. p. Trit. gum and chalk with Aq. Cinn.; add syr., and mix. **Dose, 1 to 2 fl. 3,** 28°4 to 56°8 c.C.

Ferri Arom. Red. Cinch. brk., powd., 1 oz.; Calumb. Rx. 4 oz.; cloves, brsd., 4 oz.; fine Fe wire, 4 oz.; Tr. Card. Co., 3 fl. 3; Tr. Amant. 4 fl. 3; Aq. Ment. Pip., q.s.; mac. Cinch., Cal. rt., cloves, and Fe, with 12 fl. 3 p.p. aq. 3 dys. agitatg.; filter; add Aq. M. P. to the filter to make 124 fl. 3; to this add Trs. **Dose, 1 to 2 fl. 3,** 28°4 to 58°6 c.C.

Ferri Co. Fe sulphat., 25 gr.; Pot. carb., 30 gr.; Myrrh, Sacch. Alb., of ea. 60 gr.; Spir. Myrist., 4 fl. 3; Aq. Rose, 94 fl. 3. Trit. myrrh, carb., and sugar with a little Aq. Rose to thin paste; add more Aq. Rose and the spr.; then more Aq. Rose till 2 fl. 3 of milky liqd. are obtained; then add sulphat.; diss. in remainder of Aq. Rose, and mix. **Dose, 1 to 2 fl. 3,** 28°4 to 56°8 c.C.

Guaiaci. Res. Guaiac., Sacch. Alb., of ea. 1 p.; Acac. Gum., powd., ½ p.; Aq. Cinnam., 40 fl. p.; add Aq. Cin. to others triturated. **Dose, 1/2 to 2 fl. 3,** 14°2 to 56°8 c.C.

Scammoni. Scam. powd., 1 p.; Lac. 146 fl. p. Trit. to emulsion. **Dose, 1 to 3 fl. 3,** 28°4 to 85°2 c.C.

Sennæ Co. Mg sulphat., 4 p.; Ext. Glycy. Liq., 1 fl. p.; Tr. Sennæ, 24 fl. p.; Tr. Card. Co., 14 fl. p.; Inf. Sennæ, 15 fl. p. Diss. sulphat. in Inf. by heat; add Ext. and Trs. **Dose, 1 to 14 fl. 3,** 28°4 to 12°6 c.C.

Spir. Vini Gall. Sp. V. G., Aq. Cinnam., of ea. 4 fl. 3; yolks of 2 eggs; Sacch. Alb., 4 oz. Rub yolks and sugar together, and add liqds. **Dose, 1 to 2 fl. 3,** 28°4 to 56°8 c.C.

**Mucilagines, *Mucilages*, B.P.**

Mucilago—

Acacia. Acac. Gummi, in p.s., 2 p.; Aq. Dest., 3 fl. p.  
Stir till dissolv'd., strain.

Amyli. Starch, 24 p.; Aq. Dest., 875 fl. p. Trit. with aq.  
grad. added; then boil few min., stirg.

Tragac. Tragac. powd., 12 p.; Aq. Dest., 875 fl. p.; R.S.V.,  
22 fl. p. Mix trag. with spir.; then pour in aq., agitg.

**Olea, *Oils*, B.P.** Fixed, vide p. 196.  
Volatile, vide p. 193.

**Oleata, *Oleates*, B.P.**

Ol. Hydragryri. Hg Oxid. Fl., 1 p.; Acid. Oleic., 9 p. Add  
oxid. to acid, gradually tritg. till dissolved.

Ol. Zinci. Zn Oxid., 1 p.; Acid. Oleic., 9 p. Stir oxid. with  
acid; let stand 2 hrs.; then heat by aq. bath till oxid. is  
dissolved.

**Oleoresina, *Oleoresin*, R.P. : 1 only official.**

Oleores. Cubebæ. Cub., coarse powd., 2 lbs.; ether, 4 pints, or  
q.s. : pere. with ether till percolate colourless; evapor.  
off and let resid. stand in covered vessel till crys. matter  
ceases to deposit. **Dose, 5 to 30 m., 3 to 1.77 c.c.**

**Oxymel, vide Mellita.****Pilulæ, *Pills*, B.P.**

Pilula—

Aloes Barb. Al. B., powd., 16 p.; Sapo Dur., powd., 8 p.;  
Ol. Carui, 1 fl. p.; Conf. Rosæ G., 8 p. Beat together.  
**Dose, 5 to 10 gr., .32 to .65 G.**

Aloes et Asafet. Al. Soc., powd., 1 p.; Asaf., 1 p.; Sapo  
Dur., powd., 1 p.; Conf. Rosæ G., 1 p., or q.s. Beat  
together. **Dose, 5 to 10 gr., .32 to .65 G.**

Aloes et Ferri. Fe Sulphat., powd., 1½ p.; Al. Barb., powd.,  
2 p.; Pulv. Cinnamon. Co., 3 p.; Conf. Rosæ G., 4 p. Rub  
powd. together, and add Conf. **Dose, 5 to 10 gr.,  
.32 to .65 G.**

## Pilula—

Aloes et Myrrha. Al. Soc. 2 p.; Myrrh, 1 p.; Crocus, drd., 4 p.; treacle, 1 p.; glycern., 1 p., or q.s. Trit. solids together; add treac. and q.s. glyc., and beat to uniformity. **Dose, 5 to 10 gr.**, '32 to '65 G.

Aloes Soc. Al. Soc., powd., 16 p.; Sapo Dur., powd., 8 p.; Ol. Myrist., 1 fl. p.; Conf. Rosæ G., 8 p. Beat together. **Dose, 5 to 10 gr.**, '32 to '65 c.G.

Asafot. Co. Asaf., Galban., Myrrh, of ea. 2 p.; treacle, 1 p. Heat together, and stir to uniformity. **Dose, 5 to 10 gr.**, '32 to '65 G.

Cambog. Co. Camb., powd., 1 p.; Al. Barb., powd., 1 p.; Pulv. Cinnam. Co., 1 p.; Sapo Dur., powd., 2 p.; Syr., 2 p., or q.s. Mix powd.; add syr.; beat to uniformity. **Dose, 5 to 10 gr.**, '32 to '65 G.

Colocynth. Co. Col. plp., powd., 4 p.; Al. Barb., powd., 8 p.; Res. Scam., powd., 8 p.; K sulphit., powd., 1 p.; Ol. Caryoph., 1 fl. p.; Aq. Dest., 1 fl. p., or q.s. Mix powd.; add oil; beat into mass by aid of aq. **Dose, 5 to 10 gr.**, '32 to '65 G.

Colocynth. et Hyoscy. Pil. Coloc. Co., 2 p.; Ext. Hyos., 1 p. Beat to uniformity. **Dose, 5 to 10 gr.**, '32 to '65 G.

Conii Co. Ext. Con., 5 p.; Ipec., 1 p.; treacle, q.s. Mix ext.; add q.s. treacle. **Dose, 5 to 10 gr.**, '32 to '65 G.

Ferri Carb. Fe Carb. Sarch., 4 p.; Conf. Rosæ G., 1 p. Beat to uniformity. **Dose, 5 to 20 gr.**, '32 to '65 G.

Ferri Iodid. Fe, fine wire, 40 p; I, 80 p.; Sacch. Alb. powd., 70 p.; liqre. rt., 140 p.; Aq. Dest., 46 fl. p. Shake Fe and I in stopd. oz. phial till froth white; pour fluid upon sug., trit., and add liqre. gradually. **Dose, 3 to 8 gr.**, '19 to '52 G.

Hydrag. Hg, 2 p.; Conf. Rosæ G., 3 p.; liqre. rt., fine powd., 1 p. Extinguish Hg in conf., add liqre., and mix. **Dose, 3 to 8 gr.**, '19 to '52 G.

## Pillula—

Hydrarg. Subehlord. Co. Hg subehl., 1 p.; Sb Sulphurat., 1 p.; Res. Guaiac., powd., 2 p.; Ol. Ric., 1 fl. p., or q.s. Trit. Hg with Sb; add res., and beat to uniformity. **Dose, 5 to 10 gr.,** '32 to '65 G.

Ipec. cum Scilla. Pulv. Ipec. Co., 3 p.; squill, powd., 1 p.; Ammonc., powd., 1 p.; treacle, 1 p., or q.s. Mix powd., beat to mass with treacle. **Dose, 5 to 10 gr.,** '32 to '65 G.

Morphin L. Morph. Hydrochl. 6 gr.; Ol. Theobrom. 171 gr.; rub 21 gr. oil with morph., add this to remainder of oil just melted, mix and treat as for Sapp. Ac. tann.; ea. p. cont.  $\frac{1}{4}$  gr. Morph. Hydrochloras.

Phosphori. P, 3 gr.; Bals. Tolut., 120 gr.; Cera Fl., 57 gr.; Sapo An., 90 gr. Rub P and bals. together under aq. at 60° C. (140° F.); add wax, and mix; cool still under aq. Dispense 2 gr. of mixt. with 1 gr. soap and a few drops R.S.V., if necessary; 3 gr. of mass thus made =  $\frac{1}{10}$  gr. of P. **Dose, 2 to 4 gr.,** '13 to '26 G.

Plumbi cum Opio. Pb acetat., fine powd., 6 p.; Op., powd., 1 p.; Cont. Rose G., 1 p. Beat to uniformity. **Dose, 3 to 5 gr.,** '19 to '32 G.

Rhei Co. Rheum, powd., 6 p.; Al. Soc., powd., 4  $\frac{1}{2}$  p.; Myrrh, powd., Sapo Dur., powd., 3 p.; Ol. Menth. P.,  $\frac{1}{2}$  p.; glycern., 2 p.; treacle, 6 p. Mix powd. with oil; add gly. and treacle q.s.; beat to uniformity. **Dose, 5 to 10 gr.,** '32 to '65 G.

Saponis Co. Op., powd., 1 p.; Sapo Dur., powd., 4 p.; glycern., q.s.: mix solids, and beat to uniformity with gly. **Dose, 3 to 5 gr.,** '19 to '32 G.

Scammon. Co. Res. Scam., 1 p.; Res. Jal., 1 p.; Sapo An., powd., 1 p.; Tr. Zingib. Fort., 1 fl. p.; R.S.V., 2 fl. p. Add spir. and Tr. to soap and resins., diss. by heatg.; evap. to pill consist. **Dose, 5 to 15 gr.,** '65 to '97 G.

Scillae Co. Squill, powd., 1  $\frac{1}{2}$  p.; Zing., powd., 1 p.; Ammonc. powd., 1 p.; Sapo Dur., powd., 1 p.; Treacle, 2 p., or q.s. Mix powd., add treacle, beat to uniformity. **Dose, 5 to 10 gr.,** '32 to '65 G.

### Pulveres, Powders, B.P.

#### Pulvis—

Amygd. Co. Am. Dulc., 8 p.; Sacch. Alb., 4 p.; Acac. Gum., 1 p. Steep almd. in aq., and remove skins, then dry and rub in mortar; mix gum and sugar; add to almd. plp. gradually, and rub to coarse powd.

Antimonial. Sb oxld., 1 p.; Ca phosph., 2 p. Mix. **Dose, 3 to 5 gr.**, .19 to .32 G.

Catechu Co. Catechu, powd., 4 p.; Kino, powd., 2 p.; Kram. Rad.; Cinn. Cort., powd., 1 p.; nutmeg, 1 p. Mix, sieve, and rub lightly in mortar. **Dose, 20 to 40 gr.**, 1.3 to 2.6 G.

Cinnamon. Co. Cinn. brk., powd., 1 p.; Cardam. Sem., powd., 1 p.; Zing. powd., 1 p. Mix, sieve, and rub lightly in mortar. **Dose, 3 to 10 gr.**, .19 to .65 G.

Creta Arom. Cinn. brk., powd., 4 p.; nutmeg, powd., 3 p.; Croc., powd., 3 p.; cloves, powd., 14 p.; Cardam. Sem., powd., 1 p.; Sacch. Alb., powd., 25 p.; Creta Prep., 11 p. Mix, sieve, rub lightly in mortar. **Dose, 10 to 60 gr.**, .65 to 3.9 G.

Cret. Arom. Co. Pulv. Cret. Arom., 39 p.; Op., powd., 1 p. Mix, sieve, and rub lightly in mortar. **Dose, 10 to 40 gr.**, .65 to 2.6 G.

Elaterini Co. Elaterin, 1 p.; Sacch. Lact., 39 p. Powd. and mix well. **Dose, 1/2 to 5 gr.**, .03 to .32 G.

Glycyrrh. Co. Senna, powd., 2 p.; liq. rt., powd., 2 p.; fennel frt., powd., 1 p.; Sulph. Subl., 1 p.; Sacch. Alb., powd., 6 p.; mix, sieve, and rub lightly in mortar. **Dose, 30 to 60 gr.**, 1.9 to 3.9 G.

Ipecac. Co. Ipec., 1 p.; Op., powd., 1 p.; K sulph., 8 p. Mix, sieve, rub lightly in mortar. **Dose, 5 to 15 gr.**, .32 to .97 G.

Jalap Co. Jal., powd., 5 p.; KH tart., 9 p.; Zing., powd., 1 p. Mix, sieve, rub lightly in mortar. **Dose, 20 to 60 gr.**, 1.3 to 3.9 G.

Kino Co. Kino, powd., 15 p.; Op., powd., 1 p.; Cinnamon, 4 p. Mix, sieve, rub lightly in mortar. **Dose, 5 to 20 gr.**, .32 to 1.3 G.



## Pulvis—

Opil Co. Op., powd., 3 p.; Piper N., powd., 4 p.; Zing., powd., 10 p.; Carui Fruct., powd., 12 p.; Tragac., powd., 1 p.; mix, sieve, rub lightly in mortar. **Dose, 2 to 5 gr.,** •13 to •32 G.

Rhel Co. Rheum. powd., 2 p.; Magnes. Lev., 6 p.; Zing., powd., 1 p. Mix, sieve, and rub lightly in mortar. **Dose, 20 to 60 gr.,** 1·3 to 3·9 G.

Scammon. Co. Scam. Res., powd., 4 p.; Jal., powd., 3 p.; Zing., powd., 1 p. Mix; sieve; and rub lightly in mortar. **Dose, 10 to 20 gr.,** •65 to 1·3 G.

Tragac. Co. Trag., powd., Acac. Gummi, powd., Amylum, powd., of ea. 1 p.; Sach. Alb., 3 p. Mix. **Dose, 20 to 60 gr.,** 1·3 to 3·9 G.

**Resinæ, Resins, B.P.** For Res. Guaiac., Res. Jalap. Res. Podoph., and Res. Scamm., see pp. 21, 24, 39, and 44 respectively.

**Spiritus, Spirits, B.P.****Spiritus—**

**Etheris.** Ether, 10 fl. 3; R.S.V., 1 pint. Mix. Sp. G., •809. **Dose, 30 to 90 m℥,** 1·77 to 5·3 c.c.

**Aetheris Co.** Vide p. 97.

**Aetheris Nitrosi.** Vide p. 98.

**Ammonia Arom.** Amm. Carb., 4 oz.; Liq. Am. Fort., 8 fl. 3; Ol. Myrist., 4½ fl. 3; Ol. Limon., 6½ fl. 3; R.S.V., 6 pints; aq., 3 pints. Mix oils, spir. and aq. in retort; and distil 7 pints; then distil 9 fl. 3, collectg. separately; place the 9 fl. 3, the carb., and the Liq. in a stopd. bottle, and warm to 60° C. (140° F.), with shakg.; filter, and add to the 7 pints of distilled spir., making 1 gall. Sp. Gr., •886. **Dose, 1/2 to 1 fl. 3,** 1·77 to 3·5 c.c.

**Ammonia Fort.** Asaf., 1½ oz.; Liq. Am. Fort., 2 fl. 3; R.S.V., q.s.; break up Asaf. and mac. in 15 fl. 3 spir. 24 hrs.; distil off spir. and mix the product with Liq.; addg. spir. to 1 pint. Sp. Gr. •847 (abt.). **Dose, 1/2 to 1 fl. 3,** 1·77 to 3·55 c.c.

## Spiritus—

Armoracæ Co. Armor. Rad., scraped, bitt. orange pl., cut small and bisd., of ea. 20 oz.; nutmeg, brsd.,  $\frac{1}{4}$  oz.; Pr. Spir., 1 gall.; aq. 3 pints. Mix, and distil 1 gall. Sp. Gr. .920 (abt.). **Dose, 1 to 2 fl. 3.** 3.5 to 7.1 c.c.

Cajaputi. Ol. Caj, 1 fl. 3; R.S.V., 49 fl. 3. Dissolve. **Dose, 1/2 to 1 fl. 3.** 1.77 to 3.55 c.c.

Camphoræ. Camph., 1 oz., R.S.V., 9 fl. 3. Dissolve. Sp. Gr. .850 (abt.). **Dose, 10 to 30 m.** .59 to 1.77 c.c.

Chloroformi. Chloroform., 1 fl. 3; R.S.V., 19 fl. 3. Dissolve. Sp. Gr. .871. **Dose, 20 to 60 m.** 1.2 to 3.5 c.c.

Cinnamomi. Ol. Cinn., 1 fl. 3; R.S.V., 49 fl. 3. Dissolve. **Dose, 1/2 to 1 fl. 3.** 1.77 to 3.55 c.c.

Juniperi. Ol. Jun. 1 fl. 3; R.S.V., 49 fl. 3. Dissolve. **Dose, 1/2 to 1 fl. 3.** 1.77 to 3.55 c.c.

Lavand. Ol. Lav., 1 fl. 3; R.S.V., 49 fl. 3. Dissolve. **Dose, 1/2 to 1 fl. 3.** 1.77 to 3.55 c.c.

Menth. Pip. Ol. M. P., 1 fl. 3; R.S.V., 49 fl. 3. Dissolve. **Dose, 1/2 to 1 fl. 3.** 1.77 to 3.55 c.c.

Myristicæ. Ol. Myr., 1 fl. 3; R.S.V., 49 fl. 3. Dissolve. **Dose, 1/2 to 1 fl. 3.** 1.77 to 3.55 c.c.

Rectificatus (R.S.V.), vide p. 62.

Rosmarini. Ol. Rosm., 1 fl. 3; R.S.V., 49 fl. 3. Dissolve. **Dose, 1/2 to 1 fl. 3.** 1.77 to 3.55 c.c.

Tenuior (Pr. Spir.), vide p. 62.

Vini Gallici (French Brandy).

**Succi, Juices, B.P.**

The formula in all cases\* is the same. Press out juice from fresh (i. e. not dried) drug, and add 1 vol. R.S.V. to 3 vol. juice, to preserve; set aside 7 days, and filter.

\* Limonis Succ. and Mori Succ. No spir. is added to these.

## Doses.

Sac. Bell.	..	..	5 to 15 m.	·3 to ·88 c.c.
Sac. Con...	..	..	‡ to 1 fl. $\overline{3}$ .	1·77 to 3·55 c.c.
Sac. Hyos.	..	..	‡ to 1 fl. $\overline{3}$ .	1·77 to 3·55 c.c.
Sac. Scop.	..	..	1 to 2 fl. $\overline{3}$ .	3·55 to 7·1 c.c.
Sac. Tarax.	..	..	1 to 2 fl. $\overline{3}$ .	3·55 to 7·1 c.c.

**Suppositoriæ, Suppositories, B.P.**

## Suppositoria—

Acidi Carbol. cum Sap. Ac. Carbol., 12 gr.; Sapo An., powd., 180 gr.; Glyc. Amyli, 40 gr., or q.s. Mix to suitable paste, and div. into 12 p., ea. p. cont. 1 gr. Ac. Carbolicum.

Acidi Tann. Ac. Tann., 36 gr.; Ol. Theobr., 144 gr. Rub acid with 44 gr. oil in slightly warmed mortar; add remainder of oil just melted; mix; and pour into 15 gr. moulds; or cool, and mould into 12 p.: ea. p. cont. 3 gr. Acid. Tannicum.

Ac. Tann. cum Sap. Acid. Tan., 36 gr.; Glyc. Amyli, 30 gr.; Sapo An., powd., 100 gr.; Amylum, powd., q.s. Mix Ac. Tan. with glyc. and soap and starch to suitable consist.; div. into 12 p., ea. p. cont. 3 gr. Ac. Tannicum.

Hydrarg. Ung. Hg, 60 gr.; Ol. Theobr., 120 gr. Melt oil; add Ung.; mix, and pour into 15 gr. moulds; or cool, and div. into 12 p., ea. p. cont. 5 gr. Ung. Hydrargyri.

Iodiformi. Iodfm., powd., 36 gr.; Ol. Theobr., 144 gr. Treat as for Supp. Ac. Tann.; ea. p. cont. 3 gr. Iodoform.

Morph. cum Sap. Morph. Hydrochl., 6 gr.; Glyc. Amyli., 30 gr.; Sapo An. 100 gr.; Amylum, powd., q.s. Mix morph., glyc., and soap, and starch to suitable consist.; div. into 12 p., ea. p. cont.  $\frac{1}{4}$  gr. Morph. Hydrochloras.

Plumbi Co. Pb acetat., 36 gr.; Op., powd., 12 gr.; Ol. Theobr., 132 gr. Rub Pb and Op. with 42 gr. oil, just melted; mix, and treat as for Sup. Ac. Tann.: ea. p. cont. 3 gr. Pb and 1 gr. Opium.

**Syrupi, Syrups, B.P.****Syrupus—**

**Syrupus.** Sacch. Alb., 5 lbs.; Aq. Dest., 2 pints. Diss. by heatg., and when cool, add aq. to make  $7\frac{1}{2}$  lbs. Sp. Gr. 1.330.

**Aurantii.** Tr. Aur., 1 fl.  $\frac{3}{4}$ ; Syr., 7 fl.  $\frac{3}{4}$ . Mix. Sp. Gr. 1.282. **Dose,** 1 fl.  $\frac{3}{4}$ , 3.55 c.c.

**Aurant. Flor.** Aq. Aur. Fl., 8 fl.  $\frac{3}{4}$ ; Sacch. Alb., 3 lbs.; Aq. Dest., 16 fl.  $\frac{3}{4}$  or q.s. Diss. sug. in aq. by heatg.; strain, and add Aq. A. Fl. when cool, then aq. q.s. to make  $4\frac{1}{2}$  lbs. Sp. Gr. 1.330. **Dose,** 1 fl.  $\frac{3}{4}$ , 3.55 c.c.

**Chloral.** Chl. Hyd., 80 gr.; Aq. Dest.,  $1\frac{1}{2}$  fl.  $\frac{3}{4}$ ; Syr., q.s. Diss. chl. in aq., and add syr. to 1 fl.  $\frac{3}{4}$ . Sp. gr. 1.32. **Dose,**  $1\frac{1}{2}$  to 2 fl.  $\frac{3}{4}$ , 3.55 to 7.1 c.c. Each fl.  $\frac{3}{4}$  cont. 10 gr. Chl. Hydras.

**Ferri Iodid.** Fe, 1 oz.; I, 2 oz.; Sacch. Alb., 28 oz.; Aq. Dest., 13 fl.  $\frac{3}{4}$ . Make a syr. from sug. and 10 fl.  $\frac{3}{4}$  aq.; digest Fe and I in 3 fl.  $\frac{3}{4}$  aq., heatg. slightly and shakg. till froth white; add now 2 fl.  $\frac{3}{4}$  of the syr., and boil 10 min.; then filter hot into remainder of warm syrup, and mix. Product = 2 lbs., 11 oz.; Sp. Gr., 1.355; one fl.  $\frac{3}{4}$  cont. 4.3 gr. FeI<sub>2</sub>. **Dose,**  $1\frac{1}{2}$  to 1 fl.  $\frac{3}{4}$ , 1.77 to 3.55 c.c.

**Ferri Phosphat.** Fe Sulphas Gran., 224 gr.; sod. phosp., 200 gr.; sod. bica b., 56 gr.; Ac. Phosph. Conc., 11 fl.  $\frac{3}{4}$ ; Sacch. Alb., 8 oz.; Aq. Dest., 8 fl.  $\frac{3}{4}$ . Diss. Fe in 4 fl.  $\frac{3}{4}$  boilg. aq., and sol. ph. in 1 fl.  $\frac{3}{4}$  cold aq.; mix solns.; add sod. bicarb. dissolved in little aq.; stir; filter through calico and wash free from SO<sub>3</sub>; mix ppt. with phosp. ac., and when dissolved, filter and add aq. and sugar, and diss. without heat. Product = 12 fl.  $\frac{3}{4}$ ; Sp. Gr., 1.305 (abt.); one fl.  $\frac{3}{4}$  = 1 gr. Fe<sub>3</sub>P<sub>2</sub>O<sub>8</sub>. **Dose,** 1 fl.  $\frac{3}{4}$ , 3.55 c.c.

**Hemides.** Hem. Rad. brsd., 1 oz.; Sacch. Alb., 28 oz.; Aq. Dest., boilg., 1 pint. Inf. root in aq. 4 hrs.; strain; decant from sediment; add sug. and diss. by heatg. Product = 2 lbs., 10 oz.; Sp. Gr., 1.335 (abt.). **Dose,** 1 fl.  $\frac{3}{4}$ , 3.55 c.c.

## Syrupus—

Limon. Lem. pl., fr-sh., 2 oz.; Lin. Succ., 1 pint; Sacch. Alb., 2½ lbs. Heat lem. jc. to boilg.; introduce pl., and leave till cold; filter, and diss. sugar by heatg. Product = 3½ lbs.; Sp. Gr., 1.34 (abt.). **Dose, 1 fl. 3.** 3.55 c.c.

Mori. Mori Succ., 1 pint; Sacch. Alb., 2½ lbs.; R.S.V., 2½ fl. 3; heat jce. to boilg.; cool, filter; diss. sug. by heatg., and add spir. Product = 3 lbs. 6 oz.; Sp. Gr., 1.33 (abt.). **Dose, 1 fl. 3.** 3.55 c.c.

Papav. Poppy capsls., no seeds, 20 powd., 36 oz.; R.S.V., 16 fl. 3; Sacch. Alb., 4 lbs.; Aq. Dest., boilg., q.s. Mix capsls. with 4 pints aq. and inf. 24 hrs., stirrg.; percolate finally with aq. to 2 gall. or exhaustn.; evap. to 3 pints; when cold, add spir.; filter after 12 hours; distil off spir. and evap. remaining liq. to 2 pints, then add sug. Product = 6½ lbs.; Sp. Gr., 1.33 (abt.). **Dose, 1 fl. 3.** 3.55 c.c.

Rhei. Rheum, 20 powd., Coriand. Fr., 20 powd., of ea. 2 oz.; Sacch. Alb., 2½ oz.; R.S.V., 8 fl. 3; Aq. Dest., 24 fl. 3. Mix Rh. and Cor.; percolate with spir. and aq. mixed; evap.; percolate to 14 fl. 3; filter; diss. sug. by heatg. Product = nearly 2½ lbs.; Sp. Gr., 1.31 (abt.). **Dose, 1 to 4 fl. 3.** 3.55 to 14.2 c.c.

Rhceados. Rhcead. pet., 13 oz.; Sacch. Alb., 2½ lbs.; Aq. Dest., 1 pint, or q.s.; R.S.V., 2½ fl. 3. Add pet. grad. to aq. heated on aq. bath, stirrg.; inf. 12 hrs.; press out liq., strain; diss. sug. by heat; add spir. when cold, and aq. to 3 lbs. 10 oz.; Sp. Gr., 1.33 (abt.). **Dose, 1 fl. 3.** 3.55 c.c.

Rose Gall. Rose Gall. pet., drd., 2 oz.; Sacch. Alb., 30 oz. Aq. Dest., boilg., 1 pint; inf. pet. 2 hrs.; squeeze through calico; heat to boilg.; filter; diss. sug. in liqr. by heatg. Product = 2 lbs. 14 oz.; Sp. Gr., 1.335 (abt.). **Dose, 1 fl. 3.** 3.55 c.c.

Scillar. Acet. Scillar., 1 pint; Sacch. Alb., 2½ lbs. Diss. by heatg.; Sp. Gr., 1.345 (abt.). **Dose, 1/2 to 1 fl. 3.** 1.77 to 3.55 c.c.

## Syrupus—

Sennæ. Sen., brkn. small, 16 oz.; Ol. Coriand., 3 m.; Sacch.

Alb., 24 oz.; Aq. Dest., 5 pints, or q.s.; R.S.V., 3 fl. 3.

Digest Sen. in 70 fl. 3 aq. 24 hrs. at 48° 9° C. (120° F.); press out and strain; dig. mare in 30 fl. 3 aq. 6 hrs. at same temp.; again press out and strain; evap. mixed liqrs. to 10 fl. 3, and, when cold, add spir. mixed with oil; filter, and wash filter with aq. to 16 fl. 3; add sug. and diss. by heatg. Product = 2 lbs. 10 oz.; Sp. Gr., 1·310 (abt.). **Dose, 1 to 4 fl. 3, 3·55 to 14·2 c.c.**

Tolut. Bals. Tol., 1½ oz.; Sacch. Alb., 2 lbs.; Aq. Dest.

1 pint, or q.s.; boil bals. in aq. ¼ hr., strrg.; add aq. to 16 fl. 3, cool, filter, add sug. dissolvg. by heat. Product = 3 lbs.; Sp. Gr. 1·33. **Dose, 1 fl. 3, 3·55 c.c.**

Zingib. Tr. Zing. Fortr., 6 fl. 3; Syr., 19 fl. 3. Mix with agitation. **Dose, 1 fl. 3, 3·55 c.c.**

**Tabellæ, Tablets, B.P. (only 1 official).**

Tab. Nitroglyc. Ea. weighs 2½ gr. and cont.  $\frac{1}{100}$  gr., ·0003 G. nitroglycerin. **Dose, 1 or 2 tablets.**

TABLE OF THE TINCTURES OF THE BRITISH PHARMACOPŒIA.

Name.	Oz. to Oj.	Prf. or Rect. Spirit.	Mace- rated.	Perco- lated.	Size of Powder.	Dose.	Compounds.
Aconiti ..	2½	R	48 h	& P	40	℥ 5 to 15	* Socot. Aloes in coarse p. .. ½ oz.
* Aloes ..	½	R	7 d	..	Coarse p.	℥ 1 to 2	Extr. Liquorice .. 1½ "
Arnicae ..	1	R	48 h	& P	40	℥ 1 to 1	Proof Spirit to .. 20 "
Asafoet. ..	2½	R	7 d	..	Small fragm.	℥ 1 to 1	
Aurant. ..	2	Pr	7 d	..	Cut small and bruised.	℥ 1 to 2	† Benzoin in coarse p. 2 oz.
„ recent	6	R	7 d	..	In thin slices.	℥ 1 to 2	Tolu .. 1½ "
							Bals. Tolu .. ½ "
							Socot. Aloes .. 160 gr
							Rec. Sp. .. 20 oz.
Bellad. ..	1	Pr	48 h	& P	20	℥ 5 to 20	
† Benz. Co. ..	2	R	7 d	..	Coarse p.	℥ 1 to 1	‡ Opium, Benzoic acid .. 40 grns. ea.
Buchu. ..	2½	Pr	48 h	& P	20	℥ 1 to 2	Camphor .. 30 "
							Oil of Anise ½ dr.
							P. Spirit .. 20 oz.
Calumbæ ..	2½	Pr	48 h	& P	Cut small.	℥ 1 to 2	§ Card. seeds bruised ½ oz.
† Camph. Co. ..	..	Pr	7 d	..	Opium in p.	℥ 15 to 60	Caraway fruit .. ½ "
Cannab. Ind. 1 Ext.		R	..	..	..	℥ 5 to 20	Balsins, seeds remov. 2 "
Canthar. ..	½	Pr	7 d	..	Coarse p.	℥ 5 to 20	Cinnamon bark bruised .. ½ "
Capsici ..	½	R	48 h	& P	Bruised.	℥ 10 to 20	Cochineal in powder .. 55 gr.
§ Card. Co. ..	½	Pr	48 h	& P	Bruised.	℥ 1 to 2	P. Spirit .. Oi
Coseacill. ..	2½	Pr	48 h	& P	40	℥ 1 to 2	





TABLE OF THE TINCTURES OF THE BRITISH PHARMACOPŒIA—continued.

[illegible]

TABLE OF THE TINCTURES OF THE BRITISH PHARMACOPŒIA—*continued.*

Name.	Oz. to Oj.	Prf or Rect. Spirit.	Mace- rated.	Perco- lated.	Size of Powder.	Dose.	Compounds.
*Lavand. Co.	℥ 45	R	7 d	..	..	℥ 1 to 2	* Oil of Lavender 45 min.
Limonis ..	2½	Pr	7 d	..	Cut small.	℥ 1 to 2	Oil of Rosemary 5 "
Lobellæ ..	2½	Pr	48 h	& P	40	℥ 10 to 30	Cinnamon bark,
Lobel. Eth.	2½	Sp. Eth.	7 d	..	Coarse p.	℥ 10 to 30	brsd. . . . . 75 gr.
Lupuli ..	2½	Pr	48 h	& P	..	℥ 1 to 2	Nutmeg, brsd. .. 75 "
							Red Sandalwood 150 "
Myrrhæ ..	2½	R	48 h	& P	Coarse p.	℥ 1 to 1	R. Spirit .. .. 20 oz.
†Nucis vom.	grn. 133	..	..	..	..	℥ 10 to 20	† Extract of Nux
	Ext.						Vomica .. 133 gr.
Opil .. ..	1½	Pr	7 d	..	Powder.	℥ 5 to 40	Distilled water 4 fl. oz.
‡ „ Amm.	gr. 100	..	7 d	..	..	℥ 1 to 1	Rect. Spirit to
							make .. .. 20 oz.
Podophylli	gr. 160	R	..	..	..	℥ 15 to 60	‡ Opium in
Pyrethri ..	4	R	48 h	& P	40		powder .. 100 gr
Quassia ..	4	Pr	7 d	..	Chips.	℥ 1 to 2	Saffron, cut sm. 180 "
Quinina ..	gr. 160	T. aurant.	3 d	& P	..	℥ 1 to 2	Benzoic acid .. 180 "
§ „ Amm.	gr. 160	..	..	..	..	℥ 1 to 2	Oil of Anise .. 1 dr.
							Strong Sol. of
							Ammonia .. 4 oz.
							Rect. Spirit .. 16 "
							§ Sulphate of
							Quinine .. 160 gr.
							Solution of
							Ammonia .. 2½ fl. oz.
							Proof Spirit .. 17½ "

TABLE OF THE TINCTURES OF THE BRITISH PHARMACOPŒIA—*continued.*

Name.	Oz. to Oi.	Prf. or Rect. Spirit.	Macerated.	Percolated.	Size of Powder.	Dose.	Compounds.
*Rhei .. ..	2	Pr	48 h	& P	20	3 1 to 2 stom. 3 4 to 8 purg.	* Rhubarb root, in No. 20 powder .. 2 oz.
Sabinæ ..	2½	Pr	48 h	& P	Dried and coarsely pwdd.	℥ 20 to 60	Cardamom seeds, bruised .. .. ½ "
Scillæ .. ..	2½	Pr	48 h	& P	Bruised.	℥ 10 to 30	Coriander Fruit, bruised .. .. ½ "
Senegæ ..	2½	Pr	48 h	& P	40	3 ½ to 2	Saffron .. .. ½ "
†Sennæ .. ..	2½	Pr	48 h	& P	Small.	3 1 to 4	Proof Spirit .. .. 20 "
Serpent. ..	2½	Pr	48 h	& P	40	3 1 to 2	
Stramon. ..	2½	Pr	48 h	& P	Bruised.	℥ 10 to 30	† Senna, broken small .. .. 2½ oz.
Sumbul ..	2½	R	48 h	& P	40	℥ 10 to 30	Raisins, freed from seeds .. 2 "
Tolut .. ..	2½	R	6 h	..	..	℥ 20 to 40	Caraway Fruit, bruised .. .. ½ "
Valer. .. ..	2½	Pr	48 h	& P	40	1 to 2	Coriander Fruit, bruised .. .. ½ "
„ Amm. ..	2½	Sp. Am. Arom.	7 d	..	40	½ to 1	Proof Spirit .. 20 "
Veratri. Virid.	4	R	48 h	& P	40	℥ 5 to 20	
Zingib. .. ..	2½	R	48 h	& P	In powder.	℥ 15 to 60	
„ fort. ..	10	R	2 h	& P	Fine powder.	℥ 5 to 20	

**Trochisci, Lozenges, B.P.**

Acid. Benzoic. Ac. Ben., 360 gr.; Sacch. Alb., 25 oz.; Acac. Gum., powd., 1 oz.; Muc. Acac., 2 fl. 3; Aq. Dest., q.s.; mix acid, sug. and gum; add muc. to proper mass, div. into 720 loz. and dry at moderate temp. **Dose, 1 to 5 lozenges.**

Acid. Tann. Ac. Tan., 360 gr.; Tr. Tolut.,  $\frac{1}{2}$  fl. 3; Sacch. Alb., powd., 25 oz.; Acac. Gum., powd., 1 oz.; Muc. Acac., 2 fl. 3; Aq. Dest., 1 fl. 3. Diss. acid in aq.; add 1st Tr. mixed with muc.; then gum and sug. mixed; div. into 720 loz. and dry at moderate temp. Ea. loz. cont.  $\frac{1}{4}$  gr., '032 G., tan. acid. **Dose, 1 to 6 lozenges.**

Bism. Subnit. Bi. subnit., 1440 gr.; Mg carb., 4 oz.; Ca Carb. Ppt., 6 oz.; Sacch. Alb., 29 oz.; Acac. Gum., powd., 1 oz.; Muc. Acac., 2 fl. 3; Aq. Rosa, q.s. Mix dry ingredients; add muc.; form into mass with Aq. Ros.; div. into 720 loz. and dry at mod. temp. Ea. loz. cont. 2 gr., '13 G.,  $\text{BiONO}_3 \cdot \text{H}_2\text{O}$ . **Dose, 1 to 6 lozenges.**

Catechu. Cat., powd., 720 gr.; Sacch. Alb., powd., 25 oz.; Acac. Gum., powd., 1 oz.; Muc. Acac., 2 fl. 3; Aq. Dest., q.s. Mix cat., sug., and gum; add muc. and aq. to form mass.; div. into 720 loz. and dry at a mod. temp. Ea. loz. cont. 1 gr., '065 G., catechu. **Dose, 1 to 6 lozenges.**

Ferri Redact. Fe Red., 720 gr.; Sacch. Alb., powd., 25 oz.; Acac. Gum., 1 oz.; Muc. Acac., 2 fl. 3; Aq. Dest., 1 fl. 3, or q.s. Mix Fe, sug., gum; add muc. to aq. to form mass; div. into 720 loz. and dry at mod. temp. Ea. loz. cont. 1 gr., '065 G., Fe Redact. **Dose, 1 to 6 lozenges.**

Ipecac. Ipec., powd., 180 gr.; Sacch. Alb., powd., 25 oz.; Acac. Gum., powd., 1 oz.; Muc. Acac., 2 fl. 3; Aq. Dest., 1 fl. 3, or q.s. Mix powd., and add muc. and aq. to form a proper mass; div. 720 loz. and dry at mod. temp. Ea. loz. cont.  $\frac{1}{4}$  gr., '016 G., Ipec. **Dose, 1 to 3 lozenges.**

## Treachel—

Morphine. Morph Hydrochl., 20 gr.; Tr. Tolut.,  $\frac{1}{4}$  fl.  $\frac{3}{4}$ ; Sacch. Alb., powd., 24 oz.; Acac. Gummi, powd., 1 oz.; Muc. Acac., q.s.; Aq. Dest.,  $\frac{1}{4}$  fl.  $\frac{3}{4}$ . Diss. morph. in aq.; add soln. to Tr. mixed with 2 fl.  $\frac{3}{4}$  Muc.; then add gum and sug. mixed and muc. q.s. to form a proper mass; div. into 720 loz., and dry at mod. temp. Ea. loz. cont.  $\frac{1}{30}$  gr., .0018 G., Morph. Hydrochl. **Dose, 1 to 6 lozenges.**

Morph. et Ipecac. Morph. Hydrochl., 20 gr.; Ipec., 60 gr.; Tr. Tolut.,  $\frac{1}{4}$  fl.  $\frac{3}{4}$ ; Sacch. Alb., powd., 24 oz.; Acac. Gummi, powd., 1 oz.; Muc. Acac., q.s.; Aq. Dest.,  $\frac{1}{4}$  fl.  $\frac{3}{4}$ . Diss. morph. in aq.; add soln. to Tr. mixed with 2 fl.  $\frac{3}{4}$  Muc.; then add ipec., gum. and sug. mixed, and Muc. q.s. to proper mass; div. into 720 loz., and dry at mod. temp. Ea. loz. cont.  $\frac{1}{30}$  gr., .0018 G., Morph. Hyd., and  $\frac{1}{12}$  gr., .0054 G., Ipec. **Dose, 1 to 6 lozenges.**

Opil. Ext. Op., 72 gr.; Tr. Tolut.,  $\frac{1}{4}$  fl.  $\frac{3}{4}$ ; Sacch. Alb., powd., 16 oz.; Acac. Gummi, powd., 2 oz.; Ext. Glycyrr., 6 oz.; Aq. Dest., q.s. Add Ext. Op., softened by little aq., and Tr. to Ext. Gly. heated in aq. bath; add sug. and gum rubbed together, and mix; div. into 720 loz., and dry at mod. temp. Ea. loz. cont.  $\frac{1}{10}$  gr., .0065 G., Ext. Op., or  $\frac{1}{10}$  gr., .0013 G., Morphine. **Dose, 1 to 6 lozenges.**

Pot. Chlorat Pot. chlort., powd., 3600 gr.; Sacch. Alb., powd., 25 oz.; Acac. Gummi, powd., 1 oz.; Muc. Acac., 2 fl.  $\frac{3}{4}$ ; Aq. Dest., 1 fl.  $\frac{3}{4}$ , or q.s.: mix powd., and add muc. and aq. to proper mass; div. into 720 loz., and dry at mod. temp. Ea. loz. cont. 5 gr., .32 G., KClO<sub>3</sub>. **Dose, 1 to 6 lozenges.**

Santonini. Sant., 720 gr.; Sacch. Alb., powd., 25 oz.; Acac. Gummi, powd., 1 oz.; Muc. Acac., 2 fl.  $\frac{3}{4}$ ; Aq. Dest., q.s.; mix solids; add muc. and aq. to proper mass; div. into 720 loz., and dry at mod. temp. Ea. loz. cont. 1 gr., .005 G., Santon. **Dose, 1 to 6 lozenges.**

Sod. Bicarb. Sod. bicarb., 3600 gr.; Sacch. Alb., powd., 25 oz.; Acac. Gummi, powd., 1 oz.; Muc. Acac., 2 fl.  $\frac{3}{4}$ ; Aq. Dest., 1 fl.  $\frac{3}{4}$ . Mix powd., and add muc. and aq. to

## Trochiscel—

proper mass; div. into 720 loz. and dry at mod. temp. Ea. loz. cont. 5 gr., .32 (i.,  $\text{NaHCO}_3$ ). **Dose, 1 to 6 lozenges.**

**Unguenta, Ointments, B.P.**

## Unguentum—

Acid. Boric. Ac. Bor., powd., 1 p.; Paraff. Moll., 4 p.; Paraff. Dur., 2 p. Melt paraffs., and sieve in acid; stir together till cold.

Acid. Carbol. Ac. Carb., 1 p.; Paraff. Moll., 12 p.; Paraff. Dur., 6 p. Melt, and stir together till cold.

Acid. Salicyl. Ac. Sal., 1 p.; Paraff. Moll., 18 p., Paraff. Dur., 9 p. Melt paraffs.; add acid; stir till cold.

Aconit. Acon., 1 p.; R.S.V.,  $3\frac{1}{2}$  fl. p.; Adeps Benz., 55 p. Diss. acon. in spir.; add lard, and mix.

Antim. Tart. Ant. Tart., fine powd., 1 p.; Ung., 4 p. Mix.

Atropinae. Atrop., 1 p.; R.S.V.,  $3\frac{1}{2}$  fl. p.; Adeps Benz., 55 p. Diss. atrop. in spir.; add lard, and mix.

Belladon. Ext. Bell. Alc., 1 p.; Adeps Benz., 9 p. Mix.

Calaminae. Cal. Prep., 1 p.; Adeps Benz., 5 p. Mix.

Canthar. Canth., Cera Fl., of ea. 1 p.; Ol. Oliva, 6 fl. p. Inf. canth. in oil 12 hrs.; place vessel in boilg aq. 15 min.; strain through muslin; add product to melted wax, and stir till cold.

Cetac. Cet., 10 p.; Cera Alb., 4 p.; Ol. Amygd., 40 fl. p.; benzoin powd., 1 p. Add benz. to others melted; keep hot with stirrg. 2 hrs.; remove from heat; strain off resid. benz., and stir till cold.

Chrysarob. Chrys., 1 p.; Adeps Benz., 24 p. Melt lard; add Chrys. and stir; after a time remove from heat and stir till cold.

Creasotl. Creas., 1 fl. p.; Ung., 8 p. Mix.

Elemi. El., 1 p.; Ung., 4 p. Melt; strain through flannel; stir till solid.

Eucalypti. Ol. Euc., 1 p.; Paraff. Moll., Paraff. Dur., of ea. 2 p. Melt paraff.; add oil; stir till cold.

## Unguentum—

Gallæ. Gallis, fine powd., 1 p.; Adeps Benz., 5·5 p. Mix.

Gallæ cum Op. Ung. Gallæ, 13·6 p.; Op., powd., 1 p. Mix.

Glycerin. Plumb. Subacet. Gly. Pb Subac., 1 p.; Paraff. Moll., 4 p.; Paraff. Dur.,  $1\frac{1}{3}$  p. Melt paraffs.; add glyc.; stir till cool.

Hydrag. Hg, Adeps Prap., of ea. 16 p.; Sev. Prap., 1 p. Rub till globules of Hg disappear.

Hydrag. Ammont. Hydrag. Amm., 1 p.; Ung., 9 p. Mix.

Hydrag. Co. Ung. Hydrag., 6 p.; Cera Fl., Ol. Olivæ, of ea. 3 p.; Camph., 14 p. Mix wax and oil by heat; incorp. Ung. Hyd.; add powd. camph. when nearly cool; stir.

Hydrag. Iod. Rub. Hg Iod. Rub., fine powd., 1 p.; Ung., 27·3 p. Mix.

Hydrag. Nitrat. Hg, 1 p.; Acid. Nit., 3 fl. p.; Adeps Prap., 34 p.; Ol. Olivæ, 8 fl. p. Diss. Hg in acid with a little heat; melt lard in oil in large vessel, and add Hg soln., both at 100° C. (212° F.); heat to frothg.; stir till cold.

Hydrag. Nitrat. Dil. Ung. Hg Nit., 1 p.; Paraff. Moll., 2 p. Mix.

Hydrag. Oxid. Rub. Hg oxid. Rub., fine powd., 1 p.; Paraff. Dur., 1·76 p.; Paraff. Moll., 5·3 p. Melt paraffs., and incorp. Hg oxid. as the mixt. thickens on coolg.

Hydrag. Subchlorid. Hg Subchl., 1 p.; Adeps Benz., 5·47 p. Mix.

Iodi. I, 7 p.; Pot. iod., 7 p.; glycern., 12 fl. p.; Adeps Prap., 19 p. Add lard to others rubbed together, and mix.

Iodoformi. Iodfm., 1 p.; Adeps Benz., 9 p. Add iod. to melted lard; stir till dissolved; cool.

Pictis Liq. Tar, 24 p.; Cera Fl., 1 p. Add tar to melted wax; stir till cool.

Plumbi Subacet. Pb acet., fine powd., 2 p.; Adeps Benz., 73 p. Mix.

## Unguentum—

Plumbi Carb. Pb carb., fine powd., 1 p.; Ung., 7 p. Mix.

Plumbi Iodid. Pb iod., fine powd., 1 p.; Ung., 7 p. Mix.

Pot. Sulphurate. Pot. Sulphrt., 5 p.; Paraff. Dur., 18 p.; Paraff. Moll., 55 p. Trit. Pot. Sulphrt., and add melted mixt. of hard and soft paraffs.; rub till smooth.

Pot. Iodid. Pot. iod., 16 p.; pot. carb., 1 p.; aq., 14 fl. p.; Adeps Benz., 110 p. Diss pot. iod. and pot. carb. in aq., mix all.

Resinae. Resin, powd., 4 p.; Cera Fl., 2 p.; Ung., 8 p.; Ol. Amygd., 1 fl. p.; melt; strain hot; stir till cool.

Sabinae. Sab. Cac., frsh., brsd., 4 p.; Cera Fl., 1½ p.; Adeps Benz., 8 p. Melt lard and wax by aq. bath; add savin; digest 20 min.; express through calico.

Simplex. Cera Alb., 1 p.; Adeps Benz., 1½ p.; Ol. Amygd., 1½ fl. p. Melt all together in aq. bath; stir till cool.

Staphisag. Staph. Sem., 1 p.; Adeps Benz., 2 p. Crush seeds, and mac. in melted lard 2 hrs.; strain through calico; cool. Cont. abt. 10% oil of stavesacre.

Sulphuris. S. Subl., 1 p.; Adeps Benz., 4 p. Mix.

Sulphur. Iodid. Sulph. Iod., 5 p.; Paraff. Dur., 18 p.; Paraff. Moll., 55 p. Trit. iod., add melted paraffs.; rub till cold and smooth.

Terebinth. Ol. Tereb., 8 fl. p.; resin, powd., 1 p.; Cera. Fl., 4 p.; Adeps Prap., 4 p. Melt together at 100° C. (212° F.); stir till cool.

Veratrinae. Verat., 1 p.; Paraff. Dur., 14 p.; Paraff. Moll., 41 p.; Ol. Oliva, 7 p. Rub ver. with oil, and add paraffs., when after melting they begin to thicken on cooling.

Zinci. Zn oxid., 2 p.; Adeps Benz., 11 p.; add oxid. to melted lard; stir till cool.

Zinci Olivati. Olivat. Zinci, 1 p.; Paraff. Moll., 1 p.; mix with heatg.; stir till cold.



**Vapores, Vapours, B.P.**

These are inhaled by means of a suitable apparatus.

**Vapor—**

Acid. Hydrocy. Ac. Hydrcy. Dil., 10 to 15 m, .59 to .88 c.C.; cold aq., 1 fl. 3. Inhale.

Chlori. Calc Chlorint., 2 oz.; cold aq., q.s. Inhale.

Conina. Suc. Conii, 4 fl. 3; Liq. Potass., 1 fl. 3; Aq. Dest., 1 fl. 3. Mix; put 20 m, 1.2 c.C., on sponge, and inhale vapour of hot aq. passing over.

Creasoti. Creas., 12 m; boilg. aq., 8 fl. 3. Inhale air passing over.

Iodi. Tr. Iod., 1 fl. 3; aq., 1 fl. 3. Inhale with gentle heating.

Ol. Pini Sylv. Fir wd. oil, 40 m; Mg Carb. Lev., 20 gr.; aq. q.s. Rub oil with carb., add aq. to 1 fl. 3; mix, 1 fl. 3 of mix with 10 fl. 3 cold aq. and 10 fl. 3 boilg. aq. and inhale. air passg. through.

**Vina, Wines, B.P.****Vinum—**

Aloes. Al. Soc., 14 oz.; Card. Sem., brsd., 80 gr.; Ginger, powd., 80 gr.; sherry, 2 pints. Mac. 7 dys., with ag latn.; filter; add sherry to 2 pints. **Dose, 1 to 2 fl. 3, 3.55 to 7.1 c.C.**

Antimoniale. Sb tart., 1 p.; sherry, 219 fl. p. Diss. and filter. **Dose, 5 m to 1 fl. 3, .29 to 3.55 c.C.**

Aurant. Frsh. pl. of bltt. orange is added to sugar soln., and this is fermented. Cont. 10 to 12 % alcohol.

Colchici. Colch. Corn., sliced, drd., 20 powd., 4 oz.; sherry 1 pint. Mac. 7 dys., with agitn.; press; strain through calico; add sherry to 1 pint. **Dose, 10 to 30 m, .59 to 1.77 c.C.**

Ferri. Fe, wire, 1 p.; sherry, 20 fl. p. Mac. 30 dys. with Fe *almost* all immersed; shake occasionally, and remove stopper; filter. **Dose, 1 to 4 fl. 3, 3.55 to 14.2 c.C.**

Ferri Citrat. Fe et Am. Citr., 1 p.; Vin. Aurant., 55 fl. p Diss.; shake in closed vessel 3 dys.; filter. **Dose, 1 to 4 fl. 3, 3.55 to 14.2 c.C.**

## Vinum—

**Ipecac.** Ipec., powd., 1 oz.; Ac. Acet., 1 fl.  $\bar{3}$ ; Aq. Dest. q.s.; sherry, 1 pint. Mac. ipec. in acid 24 hrs.; percolate finally with aq. to 1 pint; evap. to dryness, and mac. the powdered residue in sherry 48 hrs., with agitn.; filter. **Dose, 5 to 40 m.**, .29 to 2.36 c.c. (expect.); **3 to 6 fl.  $\bar{3}$ .** 10.65 to 21.30 c.c. (emetic).

**Opil.** Ext. Op., 1 p.; Cinnam. Cort., brsd.,  $\frac{1}{4}$  p.; cloves, brsd.,  $\frac{1}{4}$  p.; sherry, 20 fl. p. Mac. 7 dys. with agitn.; filter; 1 fl.  $\bar{3}$  cont. abt. 22 gr. Ext. Op.; 1 fl.  $\bar{3}$  cont. abt.  $\frac{1}{4}$  gr., .032 G., Morphine. **Dose, 10 to 40 m.**, .59 to 2.36 c.c.

**Quinina.** Quin. sulphat., 1 p.; Ac. Citric.,  $1\frac{1}{4}$  p.; Vin. Aurant., 438 fl. p. Diss. acid, then quin. in wine; shake 3 days; filter. 1 fl.  $\bar{3}$  cont. 1 gr. .065 G., quin. sulphat. **Dose, 1/2 to 1 fl.  $\bar{3}$ .** 14.2 to 28.4, c.c.

**Rhei.** Rheum, powd.,  $1\frac{1}{4}$  oz.; Canella Cort., 60 gr.; sherry, 1 pint. Mac. 7 dys., with agitn.; strain; press; filter; add sherry to 1 pint. **Dose, 1 to 2 fl.  $\bar{3}$ .** 3.55 to 7.1 c.c.

**Xericum.** Spanish Sherry. Cont. 17 % alcohol.

### Essential Oils, *Vol. Oils, or Essences.*

These are the proximate principles to which in the majority of cases the odours of plants are due. They have been classified somewhat as follows:—

(a) Oils consistg. of terpenes,  $C_{10}H_{16}$  (symbol T), e. g. Ol. Tereb., Ol. Limonis; or contg. T and allied oxidised products, such as saffrol  $\parallel$ , anethol  $\ddagger$ , eugenol  $\ddagger$ , thymol  $\parallel$ , menthol  $\ast$ , carvol  $\ast$ .

(b) Oils consisting chiefly of cedrenes,  $C_{15}H_{24}$ , or contg. cedrenes and allied oxidised products, e. g. Ol. Cubeba.

(c) Oils consisting chiefly of aromatic aldehydes and allied bodies, e. g. Ol. Amygd. Am., Ol. Cinnamon, Ol. Carui, &c.

(d) Oils consisting chiefly of ethereal salts, e. g. Ol. Gaulth., Ol. Sinapis.

The unoxidised hydrocarbons are called *oleoptenes*, the solid oxygenated camphoroid bodies are termed *stearoptenes*. Some vol. oils contain cymene,  $C_{10}H_{14}$ .

Most vol. oils are colourless or yellow when fresh, but some gain colour on exposure to the air, at the same time tending to become resinoid. Oils of class *d* tend to deposit crystals of acid on exposure to air.

Alcohol, ether, chloroform, benzol, are good solvents for vol. oils; alcohol dissolves oxygenated oils more readily than it does terpenes.

Some oils, as Ol. Anthem., Ol. Absinth., are blue from presence of a colouring matter (azulene), which volatilises about  $260^{\circ}C$ .

Vol. oils are liable to adulteration with alcohol, chloroform fixed oils, and with cheaper vol. oils, such as oil of turps.

Their taste may be aromatic (a), acrid (ac), pungent (p), bitter (b), sweet (s), warm (w), with cool after-taste (c), spicy (sp), mint-like (mt), camphoraceous (ca), &c.

The table gives on pp. 194 and 195 oils official in B.P. and U.S.P. (latter in italics). D = dextro-rot., L = levo-rot.;  $\ddagger$  = feebly, ! = strongly. B.P.t., Sp. Gr., &c., are approximate; Sp. Gr. often greater when old.

Name (Oleum).	Synon.	Nat. Ord.	Pol. Light.	Sp. Gr.	Taste.	Composition.	Dose.
<i>Amygdalæ</i> Am.	bitt. almond	Rosacæ.	nil	1.043-1.049	w. b.	$C_7H_6O$	$\frac{1}{2}$ to 1 m
<i>Anethi</i> Fr. ..	dill	Umbelæ.	D!	.846	—	two T. $*C_{10}H_{14}O?$	1 to 4 m
<i>Anisi</i> (B.P. only)	—	"	D L†	.976-.990	s. a.	T. $\dagger C_{10}H_{12}O$	1 to 4 m
<i>Anthemidis</i> ..	horse rad.	Composæ.	—	—	—	$C_5H_7O.O C_5H_{11}$ (= 2 ethers), &c.	1 to 4 m
<i>Aurantii</i> Cort.	orange fl.	Aurantæ.	D	.860	—	T	—
" Flor.	neroli	"	D	.85-.89	b. a.	T	—
<i>Bergamii</i> ..	—	Aurantæ.	D	.86-.88	b.	T. $C_9H_6O_3$ , sm. quant.	1 to 4 m
<i>Cajuputi</i> ..	—	Myrtæ.	L	.926	b. a.	T, $H_2O$ , orth., iso-, para-	1 to 4 m
<i>Cardamomi</i> ..	—	Zingibæ.	D	—	—	T, $3H_2O.C_{10}H_{16}O$	—
<i>Carui</i> ..	caraway	Umbelæ.	D	.920	—	T. $*C_{10}H_{14}O$	1 to 4 m
<i>Caryophylli</i> ..	cloves	Myrtæ.	L†	1.046-1.058	w. ac. a.	$C_{15}H_{24} . \dagger C_{10}H_{12}O_2$	1 to 4 m
<i>Chenopodii</i> ..	Amer. worms	Chenopæ.	—	.92	p. b.	T. $C_{10}H_{16}O$	(4 to 8 m)
<i>Cinnamomi</i> ..	—	Lauræ.	L†	1.040	s. w. a.	$C_9H_8O_2$ (cinnam. ald.)	1 to 4 m
<i>Copaibæ</i> ..	—	Legumæ.	L	.89	p. b.	T. $C_{15}H_{24}$	5 to 20 m
<i>Coriandri</i> ..	—	Umbelæ.	D	.870	w. sp.	$C_{10}H_{18}O$	1 to 4 m
<i>Cubebæ</i> ..	—	Piperæ.	L	.92	w. ca. a.	T. 2 oils, $C_{15}H_{24}$	5 to 20 m
<i>Erigonitis</i> ..	—	Composæ.	—	.85	a. p.	T. oxyd. oil	(10 to 30 m)
<i>Eucalypti</i> ..	—	Myrtæ.	D	.90	p. sp. c.	$C_{10}H_{14} . \dagger . C_{10}H_{16}O$	1 to 4 m
<i>Fœniculi</i> ..	fennel	Umbelæ.	D!	.96	—	T. $\dagger C_{10}H_{12}O$	(5 to 15 m)
<i>Gaultheriæ</i> ..	winter-green	Ericæ.	—	1.18	w. s. a.	T. $CH_3, C_7H_5O_3$	—

Name (Oleum).	Synon.	Nat. Ord.	Pol. Light.	Sp. Gr.	Taste.	Composition.	Dose.
<i>Helonitæ</i> ..	Amer. pen. rl.	Labtæ.	—	·94	p. mt.	Oxyd. oil	1 to 2 m
<i>Juniperi</i> ..	—	Conifæ.	L	·87	w. a. s.	T	1 to 4 m
<i>Lavandulæ</i> ..	—	Labtæ.	L	·89	p. b.	T. $C_{10}H_{16}O.C_{10}H_{18}O$	
<i>Lavand. Flor.</i>	—	Labtæ.	D	·89	p. b.	T. $\delta C_{10}H_{20}O.C_{10}H_{18}O$	1 to 4 m
<i>Limonis</i> ..	lemons	Aurantæ.	L	·85	—	T.	1 to 4 m
<i>Menthæ Pip.</i> ..	pepp. mt.	Labtæ.	L!	·84-·92	a. c.	* $C_{10}H_{20}O.C_{10}H_{18}O$	1 to 4 m
" Vir. ..	spear. mt.	Labtæ.	—	·90	w. a.	T. $C_{10}H_{14}O$	1 to 4 m
<i>Myrciæ</i> ..	"bay"	Myrtæ.	D!	1·04	p. sp.	T. $C_{10}H_{12}O_2$	—
<i>Myristicæ</i> ..	nutmeg	Myrtæ.	L+	·93	h. sp.	T. $C_{10}H_{14}O$	1 to 4 m
<i>Pimentæ</i> ..	—	Myrtæ.	D	1·04	p. sp.	T. $\dagger C_{10}H_{12}O_2$	1 to 4 m
<i>Rosæ</i> ..	—	Rosacæ.	L	·86	—	$C_nH_{2n}$ . oxyd. oil	—
<i>Rosmarini</i> ..	—	Labtæ.	—	·90	p. mt.	T. $C_{10}H_{16}O$	1 to 4 m
<i>Rutæ</i> ..	rue	Rutæ.	D!	·88	p. b.	$CH_3.CO.C_9H_{19}$	1 to 4 m
<i>Sabinæ</i> ..	savin	Conifæ.	L!	·91	p. b. ca.	$C_{10}H_{16}O$	1 to 4 m
<i>Santali</i> ..	sandal	Santlæ.	D	·915	p. sp.	$C_{15}H_{24}O.C_{10}H_{26}O$	10 to 30 m
<i>Sassafras</i> ..	—	Lauræ.	—	1·09	w. a.	T. $\parallel C_{10}H_{10}O_2$	(3 to 5 m)
<i>Sinapis Vol.</i> ..	mustard	Crucifæ.	—	1·017	p. ac.	SCN. $C_3H_5$	—
<i>Succini</i> ..	amber	—	D L	·92	w. ac.	—	(5 to 15 m)
<i>Terebinthina:</i>	"turps"	Conifæ.	—	·855-·870	—	Terpene	10m to 4 fl.3
<i>Thomi</i> ..	—	Labtæ.	—	·88	w. p. c.	$C_{10}H_{14}$ . T. $\eta C_{10}H_{14}O$	—
<i>Valerianæ</i> ..	—	Valernæ.	L!	·95	—	T. $C_{10}H_{18}O$	(4 to 5 m)

The Fixed Oils Official in the B.P. and U.S.P.  
Those in U.S.P. only in Italics. Animal Oils\*.

Name.	Species.	Nat. Ord.	Sp. Gr. At 100°	Composition, Uses, Dose, &c.
Oleum—				
* <i>Adipis</i> .. ..	<i>Sus scrofa</i>	Mammal.	960-920	Triolein, also palmitin and stearin.
<i>Amygdalæ</i> .. ..	<i>Prunus A.</i> amar. or dulc.	Pachydm. Rosæ	914-920	Chiefly triolein, also tripalmitin.
<i>Crotonis</i> ( <i>Tiglii</i> )	<i>C. Tiglium</i>	Euphorb.	911-955	Glycerides of tiglic, crotonic, valeric, and other vol. acids, besides lauric, myristic, palmitic, and stearic. <b>Dose, 1/3 to 1 M.</b> •019 to •059 c.C. Pustulant; purgative.
<i>Gossypii Sem.</i>	<i>G. var. spec.</i>	Malvac.	92-930	Stearin, olein, &c.
<i>Lini</i> .. ..	<i>L. usitatissimum</i>	Linac.	abt. 926	Chiefly linolein, also olein, myristin, palmitin.
* <i>Morrhue</i> .. ..	<i>Gadus M.</i>	Teleost., Gadid.	92-935	Chiefly olein, also myristin, palmitin, stearin, biliary matter. <b>Dose, 1 to 8 fl. 3, 3•55 to 23•4 c.C.</b> Nutritive.
<i>Myristicæ Exp.</i>	<i>M. fragrans</i>	Myristicac.	..	Cont. 6% vol. oil, free myristic acid, myristin, stearin.
<i>Olivæ</i> .. ..	<i>Olea europæa</i>	Oleac.	915-918	Tripalmitin, triolein, &c.
<i>Ricini</i> .. ..	<i>R. communis</i>	Euphorb.	95-970	Probably tripalmitin, with the glyceride of ricinoleic acid. <b>Dose, 1 to 8 fl. 3, 3•55 to 23•4 c.C.</b> Purgative.
<i>Sesami</i> .. ..	<i>S. indicum</i>	Pedaliac.	914-923	Chiefly olein, also myristin, palmitin, stearin.
<i>Theobromatis</i> ( <i>Theobromicæ</i> )	<i>T. Cacao</i>	Stercul.	(995)	Cont. glycerides of stearic, oleic, and a little lauric, palmitic, and arachidic acids.

## OFFICIAL PREPARATIONS OF THE U.S.P.

*(This Section from Remington's Pharmacy.)*

All quantities are parts by weight.

Italics indicate those used externally.

Liquids.		Solids.	
Made without Percolation or Maceration.	Made by Perc. or Mac.	Made by Perc. or Mac.	Made without Perc. or Mac.
<b>Aqueous Solutions—</b> Waters. Solutions. <b>Aqueous Sols., contg.</b> <b>Sweet or Viscid Sub-</b> <b>stances—</b> Syrups. Honeys. Mucilages. Mixtures Glycerites. <b>Alcoholic Solutions—</b> Spirits. Elixir. <b>Ethereal Solutions—</b> <i>Collodions.</i> <b>Oleaginous Solutions—</b> <i>Liniments.</i> <i>Oleates.</i>	<b>Aqueous Liquids—</b> Infusions. Decoctions. <b>Alcoholic Liquids—</b> Tinctures. Wines. Fluid Extracts. <b>Ethereal Liquids—</b> Oleoresins. <b>Acetous Liquids—</b> Vinegars.	Extracts Abstracts. Resins.	Powders. Triturations. Masses. Confections. Pills. Troches. <i>Cerates.</i> <i>Ointments.</i> <i>Plasters.</i> <i>Papers.</i> Suppositories. Preps. in this class are mostly ex-tempora-neous.

# Aquæ, Waters, U.S.P.

How Made.	Name.	Proportion of Liq. Dissolved.	Uses and Dose.
Single Solution ..	Aqua		
	Amygdalæ Amarae Creasoti .. .. .	0·1% Vol. Oil .. 1% Creosote.. ..	Vehicle, 2 fl. 3. Antiseptic and locally, 1 to 4 fl. 3.
By passing Gas into Aq. .. ..	Ammonia .. ..	10% NH <sub>3</sub> .. ..	Stimulant, caustic.
	" Fortior .. ..	28% " .. ..	Rubefac., escharotic.
	Chlori .. .. .	At least 0·4% Cl ..	Anti-sept., stimulant.
By Percolation through impreg- nated Cotton ..	Anisi .. .. .	0·2% Vol. Oil ..	Vehicle, 1 fl. 3.
	Camphoræ .. ..	0·8% Camphor diss. in alcoh.	Anti-spasmodic, $\frac{1}{2}$ fl. 3.
	Cinnamomi .. ..	0·2% Vol. Oil ..	Vehicle, 1 fl. 3.
	Fœniculi .. ..	0·2% " .. ..	" "
	Menthæ Pip. .. ..	0·2% " .. ..	" "
	" Vir. .. ..	0·2% " .. ..	" "
By Distillation ..	Aurantii Flor. ..	40% Fresh Flowers	Sedativ. vehicle, $\frac{1}{2}$ fl. 3.
	Destillata .. ..	—	—
	Rosæ .. .. .	40% Pale Rose ..	Vehicle, 1 3.



Liquores, *Solutions*, U.S.P.

Nature.	Name.	Composition by wt.
Simple Solutions (Aqueous).	Liquor Acidi Arseniosi Arsen. et Hydrarg. Iod.	1% $A_2O_3$ ; 2% HCl (U.S.P.). 1% $AsI_3$ ; 1% $H_2I_2$ .
	Calcis Ferri et Quin. Citr.	Saturated (abt. 0.15% 32.5% citrate of Fe and Am.; 6% quinine; 14% citric acid; 15% alcob. and aq.
	Iodi Co... ..	5% I; 10% KI.
	Pepsini... ..	4% Sacch. Peps.; 1.2% HCl (U.S.P.); 40% glycerol, aq. 54.8%.
	Plumbi Dil.	3% soln. of lead subacetate.
	Potassæ Sodæ Sodii Arseniat. " Silicat. Ammonii Acet. Ferri Acet. . . . .	5.0% potassa (2nd formula). 5.0% soda 1% sod. arseniate. Nearly saturated. [carb. Dil. acet. ac. with ammon. 33% ferric acetate. 37.8% $FeCl_3$ .
	" Chloridi " Citrati " Nitrati. " Subsulphat... " Tersulphat... Hydrarg. Nitrati... Magnes. Citrat. . . . .	43 to 44% scaled salt. 6% ferric nitrate. 43.7% of the salt. 28.7% of the salt. 56% (abt.) mercuric nitrate. Mg. carb., citr. ac., KHC $O_3$ , aq.
	Plumb. Subacet... Potassæ Pot. Citrat. . . . . " Arsenit. . . . .	25% (abt.) lead subacetate. 5% (abt.) potassa. 9% (abt.) pot. citrate. 1% $As_2O_3$ ; 1% pot. bicarb.; Tr. Lav. Co. 3% aq. to 100%.
	Sodæ " Chlorat. Zinci Chlorid. . . . .	5% (abt.) sod. hydrate. At least 2% available Cl. 50% (abt.) zinc chloride.
In Chloro- form.	Gutta-Perchæ . . . . .	{ 9% guttapercha; 10% lead carb.

Syrupi, *Syrups*, U.S.P.

p. = parts.

Method.	Name.	Sub-class.	Proportions by wt.
<div> <div>Soln. with beat.</div> <div>Simple addition to syrup.</div> </div>	Syrupus .. ..	—	65 p. sugar; aq. dest. to 100 p.
	Calcis .. ..	—	5 p. lime; 30 p. sug.; aq. to 100 p.
	Ferri Bromid. ..	Involvg. chem. actn.	10 p. ferrous bromid.; 60 p. sugar; Aq. D st. to 100 p.
	„ Iodid... ..	„ „ „	10 p. ferrous iod.; 60 p. sugar; Aq. Dest. to 100 p.
	Rubi Idæi .. ..	From pressed and fermd. juice	40 p. filtrd. juice; 60 p. sugar.
	Acac. ....	With mucilg. ....	25 p. Muc. Acac.; syrup to 100 p.
	Acid. Citric... ..	„ flavd. acid sol.	8 p. citr. ac.; 4 p. spir. lemon; 8 p. aq.; sy. to 1000 p.
	Rhei Arom... ..	„ arom. tinc. ..	10 p. arom. Tr. Rhei; syrup to 100 p.
	Ipecac. ....	„ fld. extract ..	5 p. fl. ext. ipec.; 95 p. syrup.
	Krameria .. ..	„ „ „ ..	35 p. „ kram.; 65 p. syrup.
	Lactuc... ..	„ „ „ ..	5 p. „ lactuc.; 95 p. syrup.
	Rosa .. ..	„ „ „ ..	10 p. „ rose; 90 p. syrup.
	Rubi .. ..	„ „ „ ..	20 p. „ rubus; 80 p. syrup.
	Senega .. ..	„ „ „ ..	160 p. „ senega; 4 p. Aq. Ammon.; 600 p. sugar; aq. to 1000 p.

Method.	Name.	Sub-class.	Proportions by wt.
Agitation of sugar with medicating liquid without heat.	Syrupus		
	Allii .. ..	Contg. acet. ac. ..	15 p. garlic; 60 p. sug.; 40 p. dil. acet. acid.
	Scillæ .. ..	" " " ..	40 p. vineg. squill; 60 p. sugar.
	Althææ .. ..	From cold aq. infus.	4 p. Althœa; 60 p. sugar; aq. to 100 p. [sug.; aq. to 100 p.
	Pruni Virg. .. ..	" " "	12 p. Pr. Virg.; 5 p. glycer.; 60 p.
	Rhei .. ..	" " "	9 pr. rhub., 1·8 p. cinnam, 0·6 p. $K_2CO_3$ , 60 p. sug., aq. to 100 p.
	Sennæ .. ..	Infus. made by digest.	33 p. senn.; 60 p. sug.; 4 p. alcoh.; oil of coriand. 1% of the alcoh.; aq. to 100 p.
	Amygd. .. ..	From emuls. . . .	10 p. Amyg. d.; 3 p. Amyg. a.; 50 p. sug.; 5 p. Aq. Aurant Fl.; aq. to 100 p.
	Limonis .. ..	From juice .. ..	40 p. lem. juice; 2 p. lem. peel; 60 p. sug.
	Aurantii .. ..	Medictd. water from tinct.	5 p. sw. orang. pl.; 5 p. alcoh.; 1 p. $Ca_3P_2O_8$ ; 60 p. sug.; aq. to 100 p.
	Sarsap. Co. .. ..	" " "	{ 150 p. sarsap.; 20 p. gualac. wd.; 12 p. pl. rose; 12 p. glycyrrh.; 12 p. senna; 6 p. sassaf.; 6 p. anise; 6 p. Gaulth.; 600 p. sug.; dil. alcoh. and aq. to 1000 p.

Syrupi—continued.

Method.	Name.	Sub-class.	Proportions by wt.
Agitation of sugar with medicating liquid without heat.	Syrupus Scillæ Co. . . .	{ Medictd. water from tinct.	120 p. squill; 120 p. senega; 3 p. Sb et K tart.; 1200 p. sug.; 9 p. Ca <sub>3</sub> P <sub>2</sub> O <sub>8</sub> ; dil. alcoh. and aq. to 2000 p.
	Zingib. . . . .	Medictd. water from fl. ext.	2 p. fl. ext. ging.; 65 p. sug.; aq. to 100 p.
	Aurant. Flor. . . .	{ Simple admixtr. of soln.	35 p. Aq. Aur. Fl.; 65 p. sugar.
	Ferri Quinin. et Strych. Phosph.		133 p. Fe phos.; 133 p. quin.; 4 p. strych.; 800 p. phosp. ac.; 6000 p. sug.; Aq. Dest. to 10,000 p.
	Hypophosphit...		35 p. Ca hypophos.; 12 p. Na hypophos.; 12 p. K hypophos.; 1 p. citr. ac.; 2 p. spir. lemon; 500 p. sug.; aq. to 1000 p.
	Hypophosphitum cum Ferro . .	{ Solutn. involvg. chem. act.	1 p. Fe lactate; 99 p. Sy. Hypophosphit.
	Acid. Hydriod. . .		1 l. alcoh. 8, Syr. 150, sug. 500, sp. orange 500, aq. 54 parts.
Bymac. or digestn.	Calcii Lacto-phosphat... . . .	{	22 p. Ca <sub>3</sub> P <sub>2</sub> O <sub>8</sub> ; 33 p. lact. ac.; 80 p. Aq. Aur. Fl.; 600 p. sug.; HCl; Aq. Ammon.; aq. to 1000 p.
	Picis Liquidæ . .		6 p. tar; 12 p. cold aq.; 50 p. boil. 60 p. sug.; Aq. Dest.
	Tolutanus . . .		4 p. tolu.; 65 p. sug.; Aq. Dest. to 100 p.

# Mellita, *Honeys*, U.S.P.

Name.	Proportions by wt. with Description.	Preparation.
Mel .. .. .	Coml. honey .. .. .	Melted, skimmed, and strained. Percol. rose with dil. alcoh., re- serving first 3 p. of percolate, evap. remaind. to 5 p., and mix whole with honey.
Mel Despumatum ..	Clarified honey .. .. .	
Mel Rosæ .. .. .	8 p. red rose, No. 40 pow.; 92 p. clar. honey, dil. alcoh.	

# Mucilagines, *Mucilages*, U.S.P.

Name.	Proportions by wt.	Process.
Mucilago— Acaciæ .. ..	34 p. Acac.; aq. to 100 p. ..	Wash acac. with cold aq., diss. in cold aq. strain.
Cydonii .. ..	2 p. Cydon.; Aq. Dest. to 100 p.	Macer. $\frac{1}{2}$ hr., strain without pressr.
Sarsafr. Medull.	2 p. sarsaf.-pith; aq. to 100 p.	Macer. 3 hrs., strain.
Tragacanthæ ..	6 p. tragac.; 18 p. glycerol; aq. to 100 p.	Mix gly. with 76 p. boilg. aq., add trag., macer. for 24 hrs. with stirring, strain finally through muslin.
Ulmi.. .. .	6 p. elm, boilg. aq. to 100 p.	Macer. 2 hrs., strain.

Misturæ, *Mixtures*, U.S.P.

Name.	Proportions by wt.	Descriptions.
Mistura—		
Ammoniaci .. ..	4 p. ammonc. with 100 p. aq. . . . .	} Simple gum- res. emuls.
Asafœtidæ .. ..	4 p. asaft.; aq. to 100 p. . . . .	
Amydalæ .. ..	6 p. sw. almd.; 1 p. acac.; 3 p. sug.; 100 p. aq. . .	Simple seed emuls.
Chloroformi.. ..	8 p. chlorfm.; 2 p. camph.; 10 p. egg-yolk; 80 p. aq.	Egg emuls.
Cretæ .. ..	20 p. Pulv. Cret. Co.; 40 p. Aq. Cinnam.; 40 p. aq.	} Cont. insol. pwdrs. in suspens.
Ferri Co. .. ..	6 p. Fe sulph.; 18 p. pot. carb.; 18 p. myrrh; 18 p. sug.; 50 p. Sp. Lavand.; 900 p. Aq. Rosæ.	
Glycyrrh. Co. ..	3 p. pure Ext. Gly.; 3 p. sug.; 3 p. acac.; 12 p. Tinc. Op. Camp.; 6 p. Vin. Antim.; 3 p. Spir. Æth. Nit.; 70 p. aq.	
Magnes. et Asafœt.	5 p. Mg carb.; 7 p. Tinc. Asaf.; 1 p. Tinc. Op.; 10 p. sug.; 77 p. Aq. Dest.	
Ferri et Ammon. Acet.	2 p. Tinc. Fe Chlor.; 3 p. Ac. Acet. Dil.; 20 p. Liq. Amm. Acet.; 10 p. El. Aurant.; 15 p. Syr.; 50 p. aq.	} No insol. pwdrs.
Rhei et Sodæ ..	30 p. Sod. Bicarb.; 30 p. fl. ext. rhub.; 30 p. spir. pepp.-mint.; 910 p. aq.	
Potass. Citrat. ..	100 p. fresh lemon-juice; abt. 10 p. pot. Licarb.	Efferv. mixt.

# Glycerita, *Glycerites*, U.S.P.

Name.	Proportion by wt.
Glyceritum Amyli .. .. .	10 p. starch; 90 p. glycerol; forms translucent jelly.
" Vitelli .. .. .	45 p. fresh egg-yolk; 55 p. glycerol.

# Spiritus, *Spirits*, U.S.P.

Name.	Proportions by wt.	Uses and Dose.
Spiritus—	<i>Made by Simple Solution.</i>	
Etheris .. .. .	30 p. Æth. Fort.; 70 p. alcohol. .. .. .	Stimult.; 1 to 3 fl. ʒ.
" Co. .. .. .	" " 3 p. Ol. Æth.; 67 p. alcohol.	Anod., stimt.; 30 to 60 m.
Ammon. Arom.	4 p. Am. carb.; 10 p. Liq. Amm.; 1·2 p. oil lem.; ·1 p. Ol. Lav. Flor.; ·1 p. Ol. Pimen.; 70 p. alcohol.; 15 p. aq.	Antacid; 30 to 60 m.
Anisi .. .. .	10 p. Ol. Anisi; 90 p. alcohol. .. .. .	Carminv.; 1 fl. ʒ.
Aurantii .. .. .	6 p. Ol. Aur. Cort.; 94 p. alcohol. .. .. .	Flavouring.
Camphoræ .. .. .	10 p. camph.; 70 p. alcohol.; 20 p. aq. .. .. .	Stimult.; 5 to 60 m.
Chloroformi .. .. .	10 p. purif. chlorf.; 90 p. alcohol. .. .. .	Sedatv., stim.; 10 to 60 m.
Cinnamomi .. .. .	10 p. Ol. Cinn.; 90 p. alcohol. .. .. .	Stimult. 5 to 15 m.

# Spiritus—continued.

Name.	Proportions by wt.	Uses and Dose.
<b>Spiritus—</b>		
Gaultheriæ .. ..	3 p. Ol. Gault.; 97 p. alcohol. .. ..	Flavor.; 5 to 15 m.
Juniperi .. ..	3 p. Ol. Junip.; 97 p. alcohol. .. ..	Stim., diuret.; 1 to 2 fl. 5.
"    Co. .. ..	2 p. Ol. Junip.; .02 p. Ol. Cari; .02 p. Ol. Fœnic.; 600 p. alcohol.; aq. to 1000 p.	"    "    2 to 4 fl. 5.
Lavandulæ .. ..	3 p. Ol. Lav. Fl.; 97 p. alcohol. .. ..	½ to 1 fl. 5.
Myrciæ .. ..	16 p. Ol. Myrc.; 1 p. Ol. Aur. Cort.; 1 p. Ol. Piment.; 1000 p. alcohol.; 782 p. aq.	<i>Externally.</i> (Bay rum.)
Myristicæ .. ..	3 p. Ol. Myrs.; 97 p. alcohol. .. ..	½ to 1 fl. 5.
Odoratus .. ..	1.6 p. Ol. Bergam.; .8 p. Ol. Lemon; .8 p. Ol. Rosmar.; .4 p. Ol. Lavand. Fl.; .4 p. Ol. Aurant. Fl.; .2 p. Eth. Acet.; 15.8 p. aq.; 80 p. alcohol.	Perfume. (Cologne water.)
<i>Made by Solution with Maceration.</i>		
Limonis .. ..	6 p. Ol. Lim.; 4 p. Lim. Cort.; alcohol. to 100 p.	Flavouring.
Menthæ Pip. .. ..	10 p. Ol. Men. Pip.; 1 p. pep.-mt. herb; alcohol to 100 p.	Carmin.; 10 to 20 m.
"    Vir. .. ..	10 p. Ol. Men. Vir.; 1 p. spr.-mt. herb; alcohol. to 100 p.	"    "



# Spiritus—continued.

Name.	Proportions by wt.	Uses and Dose.
<i>Made by Gaseous Solution.</i>		
Spiritus— Ammoniae .. ..	Aq. Amm. Fort.; heat; alcoh.; 10% gas	Stim.; 5 to 30 m.
<i>By Chemical Reaction.</i>		
Etheris Nit. ..	5% ethyl nitrite .. .. .	Diaph., diuretic., $\frac{1}{2}$ to 1 fl. 3.
<i>Made by Distillation.</i>		
Frumenti .. ..	Alcoh. from grain, 2 years old at least ..	Stimul.; $\frac{1}{2}$ to 1 fl. 3.
Vini Gallici ..	„ grapes, 4 „ „ ..	„ „

**Elixiria, Elixirs, U.S.P.** (1 only official).—1 p. Ol. Aurant. Cort., 2 p. cotton, 100 p. sug., a mixt. of alcoh. and aq. (1 to 3), with which percol. to 300 p. (all by wt.).

# Collodia, Collodions, U.S.P.

Name.	Proportions by wt.
Collodium .. ..	4 p. Pyrox.; 70 p. Eth. Fort.; 26 p. alcoh.; decant from sediment.
C. cum Canthar. ..	60 p. Canthar., 250 p. chlorfm.; distil and evap. distillt. to 15 p.; diss. residue in 85 p. Coll. Flex., and decant.
C. Flexile .. ..	92 p. Coll.; 5 p. Tereb. Canad.; 3 p. Ol. Ricini.
C. Stypticum ..	20 p. tannic ac.; 5 p. alcoh.; 20 p. Eth. Fort.; 55 p. Coll.

Linimenta, *Liniments*, U.S.P.

Name.	Base.	Proportions by wt.
Linimentum—		
Ammoniae ..	Oil.	30 p. Aq. Ammon.; 70 p. cotton-seed oil.
Calceis .. ..	"	5 p. Liq. Calceis; 50 p. cotton-seed oil.
Camphorae ..	"	20 p. camphor; 80 p. "
Plumbi Subacet	"	40 p. Liq. Plumb. subac.; 60 p. cotton-seed oil.
Belladonnae ..	Alcoh.	5 p. camphor; 95 p. Ext. Bellad. Fl.
Chloroformi ..	"	40 p. coml. chlorof.; 60 p. Lin. Sapon.
Saponis .. ..	"	10 p. soap.; 5 p. camph.; 1 p. Ol. Rosmar.; 70 p. alcoh.; aq. to 100 p.
Sinapis Co. ..	"	3 p. vol. oil must.; 2 p. Ext. Mezer.; 6 p. camph.; 15 p Ol. Ricini; alcoh. to 100 p.
Cantharidis ..	Ol. Tereb.	15 p. Canthar.; Ol. Tereb. to 100 p.
Terebinthinae ..	"	65 p. resin cerate; 35 p. Ol. Tereb.

Oleata, *Oleates*, U.S.P.

Name.	Proportions by wt.
Oleatum Hydrargyri .. .. .	10 p. yell. HgO to 90 p. oleic acid.
Oleatum Veratrinae .. .. .	2 p. Veratrine to 98 p. oleic acid.

# Infusa, *Infusions*, U.S.P.

Name.	Proportions by wt.	Use and Dose.
Infusum—	<i>Made by Maceration.</i>	
Brayeræ ..	6 p. Kooso; 100 p. boil. aq.; not strained.. ..	Tœnicide; 8 fl. 3.
Digitalis ..	1½ p. Digit.; 1½ p. Cinnam.; 7½ p. alcoh.; boil. aq. to 100 p.	Diuretic, &c.; 4 fl. 5.
Sennæ Co.	6 p. Senna; 12 p. Manna; 12 p. Mg sulph.; 2 p. fennel; boil. aq. to 100 p.	Purgativ.; 2 to 4 fl. 3.
	<i>Made by Percolation.</i>	
Cinchonæ ..	6 p. Cinch.; 1 p. Acid Sulp. Arom.; aq. to 100 p. ..	Tonic.
Pruni Virg.	4 p. wild cherry bark; aq. to 100 p. .. ..	"

# Decocta, *Decoctions*, U.S.P.

Name.	Proportions by wt.
Decoctum—	
Cetrariæ .. .. .	5 p. Cetraria; aq. to 100.
Sarsap. Co. .. ..	10 p. Sarsa.; 2 p. Sassafr.; 2 p. Guaiac. Liq.; 2 p. Glycyrr.; 1 p. Mezereum; aq. to 100 p.

Tincturæ, *Tinctures*, U.S.P.

(Arranged in order of strength.)

Per cent. of Drugs or Actv. Agents.	Gr. of Actv. Agents per fl. ʒ.	Name.	Fineness of Powder.	Menstruum.	Ingredients in 100 parts by weight.
1·6	$\frac{1}{3}$	Tinctura— Opii Camph. ..	50	Alc. Dil.	·4 p. pwd. opium; ·4 p. benz. ac.; ·4 p. Ol. Anisi; ·4 p. camph.; 4 p. glycerol.
5	$2\frac{1}{3}$	Cantharidis ..	60	Alcoh.	5 p. Cantharides.
		Capsici .. ..	30	95 p. Alc.; 5 p. aq.	5 p. capsicum.
		Lavand. Co. ..	20	68 p. Alc.; 27 p. aq.	·8 p. Ol. Lav.; ·2 p. Ol. Rosmar.; 1·8 p. cinnam.; ·4 p. cloves; 1 p. nutmeg; ·8 p. red saunders.
5·5	—	Cardam. Co. ..	40	Alc. Dil.; 6% Glyc.	2 p. Cardam.; 2 p. cinnam.; 1 p. caraway; ·5 p. cochineal.
8	4	Iodi .. .. .	—	Alcoh.	8% Iodine.
10	$4\frac{1}{4}$	Bryoniæ .. ..	40	"	10 p. Bryonia.
		Physostig. ..	"	"	10 p. Physostig.
		Sumbul .. ..	30	"	10 p. Sumbul.
		Tolutana .. ..	—	"	10 p. Bals. Tolu.
		Arnici Rad. ..	40	Alc. Dil.	10 p. Arnica Rad.
		Chiratae .. ..	"	"	10 p. Chirata.

Tincturæ—continued.

Per cent. of Drugs or Actv. Agents.	Gr. of Actv. Agents per fl. 3.	Name.	Fineness of Powder.	Menstruum.	Ingredients in 100 parts by weight.
10	5 $\frac{1}{2}$	Tinctura—			
		Crocī .. ..	—	Alc. Dil.	10 p. saffron.
		Cubebæ .. ..	30	"	10 p. cubeb.
		Matico .. ..	40	"	10 p. Matico.
		Moschī .. ..	—	"	10 p. musk.
		Quassia .. ..	40	"	10 p. Quassia.
		Serpentaria ..	"	"	10 p. Serpentaria.
		Stramonii ..	"	"	10 p. Stamon. Sem.
		Vanillæ .. ..	Brzd.	Alc. 2; aq. 1	10 p. Vanilla.
		Calumbæ .. ..	20	" 3; " 2	10 p. Columba.
—	$\frac{1}{2}$ Ext.	Cinnamomi ..	40	" 3; " 2	10 p. cinnamon.
		Ignatiæ .. ..	60	" 8; " 1	10 p. Ignatia.
—	5 $\frac{1}{2}$	Opī .. ..	50	Alc. Dil.	10 p. pwd. opium.
		Op. Deodor. ..	"	Alc. 2; aq. 3	" " "
		Kino .. ..	—	Alc. 60; Glc. 15; aq. 15	10 p. Kino.
14	7 $\frac{1}{2}$	Gentianæ Co.	40	Alc. Dil.	8 p. Gentian; 4 p. bitt. orang. pl.; 2 p. Cardam.
		Rhei .. ..	"	"	12 p. Rheum; 2 p. Cardamom.

Tincturæ—continued.

Per cent. of Drugs or Actv. Agents.	Gr. of Actv. Agents per fl. 3.	Name.	Fineness of Powder.	Menstruum.	Ingredients in 100 parts by weight.
15	8½	Tinctura—			
		Gelsemii ..	60	Alcoh.	15 p. Gelsemium.
		Belladonnæ ..	"	Alc. Dil.	15 p. Belladon. Fol.
		Cardamomi ..	30	"	15 p. cardamom.
		Colchici .. ..	"	"	15 p. Colch. Sem.
		Conit .. ..	"	"	15 p. Contum; .4% dil. HCl.
		Digitalis.. ..	60	"	15 p. Digitalis.
		Hyoscyami ..	"	"	15 p. Hyoscyamus.
17	9	Scillæ .. ..	30	"	15 p. squill.
		Sanguinarie ..	60	Alc. 2; aq. 1	15 p. Sanguinaria.
		Rhei Dulcis ..	40	Alc. Dil.	8 p. Rheum: 4 p. glycyrr.: 4 p. anise.: 1 p. Cardam.
		Aloes et Myrrhæ	50	Alcoh.	10 p. Aloes: 10 p. myrrh.
20	10½	Asafœtidæ ..	Brsl.	"	20 p. Asafœtida.
		Aurant. Dulc.	Cut	"	20 p. sw orange peel.
		Benzoini .. ..	40	"	20 p. Benzoinum.
		Cannab. Ind. ..	"	"	20 p. Cannabis Ind.
		Cimicifugæ ..	60	"	20 p. Cimicifuga.
		Guaiaci .. ..	20	"	20 p. Gualacum.

*Tincturæ—continued.*

Per cent of Drugs or Actv. Agents.	Gr. of Actv. Agents per fl. ʒ.	Name.	Fineness of Powder.	Menstruum.	Ingredients in 100 parts by weight.
20	10½	Tinctura—			
		Myrrhæ .. ..	20	Alcoh.	20 p. myrrh.
		Pyrethri .. ..	40	"	20 p. Pyrethrum.
		Zingiberis .. ..	"	"	20 p. ginger.
		Aloes .. ..	50	Alc. Dil.	10 p. Aloes: 10 p. Ext. Glycyrr.
		Arnica Flor. ..	20	"	20 p. Arnica Flor.
		Aurant. Amar.	30	"	20 p. bt. orange peel.
		Calendulæ .. ..	20	"	20 p. Calendula.
		Catechu Co. ..	40	"	12 p. Catechu; 8 p. cinnamon.
		Gallæ .. ..	"	Alc. Dil.; 10% glyc.	20 p. nutgall.
		Humuli .. ..	20	Alc. Dil.	20 p. hops.
		Hydrastis .. ..	60	"	20 p. Hydrastis.
20	10½	Ipec. et Opii ..	—	"	10 p. Ext. Ipec. Fl.; Tr. Op. Deod. to 100 p.
		Krameria .. ..	40	"	20 p. Krameria.
		Lobelia .. ..	"	"	20 p. Lobelia.
		Nucis Vom. ..	60	Al. 8; aq. 1	20 p. Nux Vomica.
		Valeriana .. ..	"	" 2 " 11	20 p. valerian.
		Cinchonæ .. ..	"	" 65 " 25 Glc. 10	20 p. Cinchona Flav.

## Tincturæ—continued.

Per cent. of Drugs or Actv. Agents.	Gr. of Actv. Agents per fl. 3.	Name.	Fineness of Powder.	Menstruum.	Ingredients in 100 parts by weight.
20	10½	Tinctura— Cinchonæ Co...	60	Alc. 80; aq. 10; Glc. 10.	10 p. Cinch. Rub., 8 p. bt. orange pl., 2 p. Serpentaria.
		Guaici Ammont.	20	Sp. Am. Ar.	20 p. Guaiacum.
		Valer. Ammont.	60	"	20 p. valerian.
26	13½	Benzoini Co. ..	—	Alcoh.	12 p. Benz., 2 p. Aloes; 8 p. storax; 4 p. Bals. Tolu.
30	16½	Rhei Arom. ..	40	Alc. Dil.	20 p. Rheum; 4 p. cinnam.; 4 p. cloves; 2 p. nutmeg.
35	—	Ferri Chloridi ..	—	Alcoh.	35 p. Liq. Ferri Chloridi.
40	19	Aconiti .. ..	60	"	40 p. Acon. Rx.; 4 p. Acd. Tart.
50	—	Ferri Acetatis	—	"	50 p. Liq. Ferri Acet.; 20 p. Eth. Acet.
—	24	Verat. Vir. ..	60	"	50 p. Verat. Vir.
—	—	Herb. Recent.	Brsd.	"	50 p. fresh herb.
65	36½	Sapon. Virid.	—	"	65 p. green soap; 2 p. Ol. Lavand.



# Vina, Wines, U.S.P.

Name.	Definitions and Proportions by wt.
<i>Not Medicated.</i>	
Vinum Album .. ..	White wine; not less 10%, nor more than 12%, Alcoh. Absol. by wt.
" Alb. Fort. ..	7 p. Vin. Alb.; 1 p. Alcoh.; not, less 20%, more 25%, Al. Ab. by wt.
<i>Made by Solution.</i>	
" Antimonii ..	4 p. Sb. et Pot. Tart.; 60 p. boil. Aq. Dest.; Vin. Alb. Fort. to 1000 p.
" Ferri Amar.	8 p. Liq. Fe et Quin. Citr.; 12 p. Tr. Aur. Dul.; 36 p. Syr.; 44 p. Vin. Alb. Fort.
" " Citrat...	4 p. Fe et Am. Citr.; 12 p. Tr. Aur. Dul.; 12 p. Syr.; 72 p. Vin. Alb. Fort.
" Ipecac. .. ..	7 p. Ext. Ipec. Fl.; 93 Vin. Alb. Fort.
<i>Made by Maceration.</i>	
" Aloes .. ..	6 p. purif. Aloes, 1 p. Cardam., 1 p. ginger; all 20 powd.: mac. with 90 p. Vin. Alb. F. 7 days, filt., add Vin. Alb. F. to 100 p.
" Colchici Sem.	15 p. Colch. Sem., 20 powd.; Vin. Alb. F. to 100 p.
" Opii .. ..	10 p. op., 1 p. cinnam., 1 p. cloves; all powd.: 90 p. Vin. Alb. F.; mac. 7 days; filt.; add Vin. Alb. F. to 100 p.
<i>Made by Percolation.</i>	
" Aromat. ..	1 p. each, lavand., Orig., pepp.-mt., rosemar., sage, wormwood; perc. with Vin. Alb. Fort. to 100 p.
" Colch. Rad.	40 p. Colch. Rx., 30 powd.; perc. with Vin. Alb. F. to 100 p.
" Ergote .. ..	15 p. ergot, 30 powd.; perc. with Vin. Alb. F. to 100 p.
" Rhei .. ..	10 p. Rheum, 30 powd.; 1 p. Calamus, 30 powd.; perc. with Vin. Alb. F. to 100 p.

# Extracta Fluida, *Fluid Extracts*, U.S.P.

Name.	Menstruum.		Per cent. vol. reserved.*	Process and Remarks.
	Per cent. wt. to moistn.			
Extractum—			c.C.	
Aconiti Fl. ..	40	} Alcohol. Class 1. }	90	From Ac. Rad.; Aed. Tart. 1%. From Pulv. Aromat. Perc. with menstr. until drug exhaustd., reserving c.C. shown in col. *; evap. or dist. rest of perc't. not above 122° F. 50° C.) to soft ex- tract. Dist. this in reserved portn., and add Al. to 100 c.C. + Ext. Ip c. Fl. Perc. Ipec. with Alcoh. till exhaustd.; dist. off Alcoh. till resid. 50 c.C., add to this 100 c.C. aq.; evap. mixt. to 75 c.C., filt. when cool. Wash cont. of filter till filtrate tasteless; evap. all to 50 c.C. Cool, add Ale. to 100 c.C. <b>Note.</b> —General Pro- cess for Fl. Extracts. 100 G. of drug is taken, and the product is made up to 100 c.C.
Aromat. „ ..	35		85	
Bellad. „ ..	35		90	
Brayeræ „ ..	40		90	
Calami „ ..	35		90	
Cannab. Ind. Fl.	30		90	
Capsici Fl. ..	50		90	
Cimicif. „ ..	25		90	
Cubebæ „ ..	25		90	
Cyprip. „ ..	35		85	
Eucalypt. „ ..	35		85	
Gelsemii „ ..	30		90	
Lupul. „ ..	20		70	
Mezerei „ ..	40		90	
Sabinae „ ..	25		90	
Sanguin. „ ..	30		85	
Scillæ „ ..	20		75	
Verat. Vir. Fl. ..	30		90	
Xanthox. „ ..	25		90	
Zingib. „ ..	25		90	
Ipecac.† „ ..	35		—	

## Extracta Fluida--continued.

Name.	Menstruum.			Process and Remarks.
	Per cent. wt. to moistn.		Per cent. vol. reserved.*	
Extractum— Nucis Vom. Fl.	100	Alcoh. 8, aq. 1. Class 2.	c.C. 90	Mac. Nux Vom. with 100 c.C. of the menstruum 48 hrs., perc. till exhausted; dist. off alc.; evap. resid. to soft ext.; dissol. this in reserv. port.*; make up with menstr. to 100 c.C.
Digitalis        "	35	Alcoh. 3, aq. 1. Class 3.	85	Mix alc. and aq., and exhaust drug with menstr.; reserve * c.C., dist. or evap. remain- der to soft ext.; add this to reserved portn. and enough menstr. to make 100 c.C.
Grindeliæ       "	30		85	
Guaranæ       "	20		80	
Hydrastis       "	30		85	
Hyoscyami       "	40		90	
Iridis           "	40		90	
Podophylli       "	30		85	
Rhei             "	40		75	
Serpentariæ     "	30		90	
Stramonii       "	20		90	

Name.	Menstruum.		Per cent. vol. reserved.*	Process and Remarks.
	Per cent. wt. to moistn.			
Extractum—			c.C.	
Aurant. Amar. Fl.	35	} Alcoh. 2, aq. 1. Class 4. }	80	2% Aq. Amm. added to diss. pectin.
Buchu Fl. . . .	30		85	
Colch. Rad. Fl. . .	35		85	
Colch. Sem. „ . .	30		85	
Senegæ „ . .	45		85	
Valerianæ „ . .	30		85	
Viburni „ . .	30		85	
Arnicae Rad. Fl.	40	} Alcoh. Dilutum. Class 5. }	90	Exhaust drug with menstr., reserving * c.C.; evap. re- mainder to soft ext., diss. this in reserved portn., and add enough Alcoh. Dil. to make 100 c.C.
Calumbæ Fl. . .	30		70	
Conii Fl. . . .	..		90	
Dulcamaræ Fl. . .	30		80	
Erythroxyl. „ . .	40		80	
Eupatorii „ . .	45		80	
Gentianæ „ . .	40		80	
Glycyrr. „ . .	35		5	
Lobeliæ „ . .	35		85	
Pilocarpi „ . .	35		85	
Quassia „ . .	40		90	
Rumicis „ . .	35		80	
Spigellæ „ . .	30		85	
Stillingiæ „ . .	30		85	

## Extracta Fluida—continued.

Name.	Menstruum.			Process and Remarks.
	Per cent. wt. to moistn.		Per cent. vol. reserved.*	
Extractum— Gossyp. Rad. Fl.	50	Glc. 35, Alc. 60	c.O. 70	From rt.-brk. ; finish percltn. with Alcohol.
Chimaphilæ „	40	} Glc. 10, Alc. D. 90	70	
Chirataë Fl. ..	35		85	Finish percltn. with Alcoh. Dil.
Geranii „ ..	„		70	
Rhois glabræ Fl.	„		80	
Rosæ Fl. .. ..	40		75	
Uvæ Ursi Fl. ..	35		70	
Leptandraë „ ..	40	Glc. 15, Alc. D. 85	80	
Cornus „ ..	30	} Glc. 20, Alc. D. 80	85	Finish percltn. with Alc. 3, aq. 1. Finish percltn. with Alc. 3, aq. 1. Finish percltn. with Alc. 9, aq. 7.
Krameriaë „ ..	40		70	
Pareiraë „ ..	„		85	
Cinchonæ „ ..	35	Glc. 25, Alc. 75	75	
Matico „ ..	30	Glc. 10, Alc. 75, aq. 25.	85	
Rubi „ ..	35	Glc. 20, Alc. 45, aq. 35.	70	

Containing glycerol. Class 6.

# Extracta Fluida—continued.

Name.	Menstruum.			Process and Remarks.
	Per cent. wt. to moistn.		Per cent. vol. reserved.*	
Extractum—			c.G.	
Sarsap. Co. Fl. ..	40	Glc. 10, Alc. 30, aq. 60.	80	Sarsap. 75, Glycyrr. 12, sas- saf. brk. 10, Mezer. 3. Finish percltn. with Alc. 1, aq. 2.
Sarsap. Fl. . . .	„	Glc. 10, Alc. 30, aq. 60.	80	Finish percltn. with Alc. 1, aq. 2.
Pruni Virg. Fl.	50	Glc. 1, aq. 2	80	Finish percltn. with Alc. Dil.; evap. first 120 c.C. of weak
perc. to thin syrup; dist. off alcoh. from remainder, and evap. residue to a thin syrup; unite the syrupy liqds. and evap. to a soft ext.; diss. this in reserved portn., and add Alc. Dil. to 100 c.C.				
Sennæ Fl. . . .	40	Alc. 3, aq. 4 Class 7.	80	Finish percltn. with Alc. 3, aq. 4.
Ergotæ „ . . .	30		85	Finish percltn. with Alc. 3, aq. 4. Add 6% Ac. Hydrochl. Dil. before evap. to fix alklds.

# Extracta Fluida—continued.

Name.	Menstruum.			Process and Remarks.
	Per cent. wt. to moistn.		Per cent. vol. reserved.*	
Extractum— Taraxaci Fl. ..	30	Alc. 2, aq. 3. <b>Class 8.</b>	c.C. 85	Finish percltn. with Alc. 2, aq. 3.
Frangulæ „ ..	35	} Alc. 1, aq. 2. { <b>Class 9.</b>	80	} Finish percltn. with Alc. 1, aq. 2.
Hammamel. Fl. ..	35		85	
Scutellar. „	35		80	
Lactucarli „ ..	..	Alc., aq. <b>Class 10.</b>	..	Mac. 100 G. Lactuc. with 100 G. Æther, add 3 times its wt. of aq., agitate, dist. off ether; add Alcoh., mac., express, filter, and reserve filtrate; mac. dregs repeatedly with Alcoh. 1, aq. 3; filt. from dregs, evap. to 60 G., unite this filtrate with reserved filtrate, add Alcoh. and aq. to 100 c.C.; decant clear liqd., wash ppt. with Alcoh. 3, aq. 4; conc. washings, mix with decanted liqd., add enough Alcohol and aq. to make 100 c.C.

## Extracta Fluida—continued.

Name.	Menstruum.			Process and Remarks.
	Per cent. wt. to moistn.		Per cent. vol. reserved.*	
Extractum— Tritici Fl. .. ..	..	Boilg. aq. <b>Class 11.</b>	c.C.	Percelte. 100 G. Triticum with boilg. aq. until exhausted, evap. to 80 c.C., add 20 c.C. Alcoh., filter, make up 100 c.C. with Alc. 1, aq. 4.
Castanæ Fl. ..	500	Boilg. aq. <b>Class 11.</b>	20	Mac. 100 G. Cast. with boilg. aq., express, perc. residue to exhaustn.; mix liqds., evap., add Alcoh., decant, filter re- mainder, evap. unitd. liqds., make up to 100 c.C. with Alcohol.



Oleoresinæ, *Oleoresins*, U.S.P.

Name.							Yield.	Dose.
Oleoresina	Aspidii†	..	..	..	..	..	10 to 15%	$\frac{1}{2}$ to 1 fl. ʒ
"	Capsici *	..	..	..	..	..	5%	$\frac{1}{4}$ to 1 m
"	Cubebæ *	..	..	..	..	..	18 to 25%	5 to 30 m
"	Lupulini	..	..	..	..	..	50%	2 to 5 m
"	Piperis *	..	..	..	..	..	5%	$\frac{1}{4}$ to 1 m
"	Zingiberis	..	..	..	..	..	6 to 8%	1 m

Oleoresins are prepared by percolng. the drug (100 p.) with Æther Fortior until 150 p. have passed. The greater part of the ether is distilled off, and the remainder evapd. off. In the cases marked \* fatty matter, "waxy and crystn. matter," and piperine respectively separate from the residue after evapn., and these must be removed from the liqd. (oleo-res.) by straining, decanting, &c. In the case marked † the granular crystn. substance which separates on standing should be mixed with the liqd. before use.

Aceta, *Vinegars*, U.S.P.

Name.					Proportions by Weight.
Acetum	Lobeliæ	..	..	..	10% drug in 30 powd.; Ac. Acet. Dil. to 100 p.
"	Opil	..	..	..	10% opium in powd.; 3% powd. nutmeg; 20% sugar; Ac. Acet. Dil. to 100 p.
"	Sanguinariæ	..	..	..	10% drug in 30 powd.; Ac. Acet. Dil. to 100 p.
"	Scillæ	..	..	..	" " " "

# Extracta, *Extracts*, U.S.P.

Arranged according to alcoholic strength of their menstrua.

Name and Menstruum.	No. of Powder.	Quantity $\frac{1}{100}$ moisten 100 p. drug.	Quantity reserved.	Per cent. of Glycerol added to Ext.	Process and Notes.
<b>Alcohol.</b>					
Ext. Aconiti (Root with 1% Ac. Tart.)	10	40	90	5	} Percoltg. after 48 hrs. macertrn., reserving 90% of percolte., evapg. remainder to 10%, adding reserv. portn. and evapg. at not above 50° C. to pilul. consistence.
„ Mezerei .. ..	30	40	90	..	
„ Physostig. ..	40	40	90	..	
„ Cannab. Ind. ..	20	30	..	..	
„ Juglandis ..	30	40	..	5	
<b>Alcoh. 8, aq. 1.</b>					} Percoltg. to exhaustn. after 48 hrs. macertrn., distllg. off alcoh., evapg. to pil. consistence.
Ext. Nucis Vom. ..	10	100	..	..	
<b>Alcoh. 3, aq. 1.</b>					
Ext. Cinchonæ ..	60	35	..	5	} Percoltg. to exhaustn. after 48 hrs. macertrn., using dild. alcoh. to finish, and distllg. off alcoh., evapg. to pilul. consistence.
„ Iridis .. ..	60	40	..	..	

## Extracta—continued.

Name and Menstruum.	No. of Powder.	Quantity to moisten 100 p. drug.	Quantity reserved.	Per cent. of Glycerol added to Ext.	Process and Notes.
Ext. Podophylli ..	100	30	..	..	Percltg. until 5 times wt. of powder in perclte. is obtained, distillg. off alcoh., evap. to pil. consist.
„ Rhei .. ..	100	40	100	..	Percltg. to exhaustn. <i>without</i> macrtn., reservg. 1st 100 p. of perclte. from 100 p. drug, and spontaneously evapg. this reserv. portn. to $\frac{1}{4}$ its wt., evapg. remaind. to syrup, mixg. with reserv. portn. and evapg. to pil. consist.
<b>Alcoh. 2, aq. 1.</b>					
Ext. Bellad. Alcoh. (leaves).	60	40	90	5	} Percltg. to exhaustn. after 48 hrs. macrtn., using dild. alcoh. to finish, reservg. 90% of perclte., evapg. remaind. to 10%, mixg. with reserv. portn., and evapg. not above 50° C. to pil. consist.
„ Hyoscy. Alcoh.	60	40	90	..	
„ Digitalis.. ..	60	40	..	5	} Percltg. to exhaustn. after 24 hrs. macrtn., using Alcoh. Dil. to finish, distillg. off alcoh., evapg. to pil. consist.
„ Leptandræ ..	40	40	..	5	

## Extracta—continued.

Name and Menstruum.	No. of Powder.	Quantity to moisten 100 p. drug.	Quantity reserved.	Per cent. of Glycerol added to Ext.	Process and Notes.
<b>Alcoh. Dil.</b> Ext. Arnice Rad. ..	60	40	50	5	Percltg. to exhaustn. after 24 hrs. macrtn., reserving 90% of perclte., evapg. re- maind. to 10%, mixg. with reserv. portn., and evapg. not above 50° C. to pil. consist.
„ Conii Alcoh. (fruit).	40	30	90	5	Same as arnica rt., but macrtn. is 48 hrs., and 3% Ac. Hydch. Dil. is added to fix alkld.
„ Euonymi ..	30	40	..	5	Percltg. to exhaustn. after 48 hrs. macrtn., distllg. off alcoh., evapg. to pil. consist.
„ Stramonii (seed)	40	30	90	..	Percltg. to exhaustn. after 48 hrs. macrtn., reserving 90% of perclte., evapg. re- maind. to 10%, mixing with reserv. portn., and evapg. not above 50° C. to pil. consist.

## Extracta—continued.

Name and Menstruum.	No. of Powder.	Quantity to moisten 100 p. drug.	Quantity reserved.	Per cent. of Glycerol added to Ext.	Process and Notes.
Ext. Colocynth. (no seeds).	coarse powd.	..	..	..	Macrtg. 4 days, expressg. and straining through flannel, percltg. resid., distllg. mixed tincts., evapg. resid. to dryness; making into powd. extract.
<b>Alcoh. 3, aq. 4.</b>					
Ext. Ergotæ .. ..	..	..	..	..	Evapg. Ext. Ergot. Fl. to pil. consist.
<b>Aqua.</b>					
Ext. Aloes Aquos...	..	..	..	..	Maceration { Macrtg. in boilg. aq., with stirrg., letting stand 12 hrs., decantg. liqd., evapg. to dryness. Macrtg. with cold aq. 48 hrs., boilg., straining. hot, evapg. to dryness. } powd. extracts.
„ Hæmatoxyli ..	..	..	..	..	



# Extracta—continued.

Name and Menstruum.	No. of Powder.	Quantity to moisten 100 p. drug.	Quantity reserved.	Per cent. of Glycerol added to Ext.	Process and Notes.
Ext. Quassiae .. ..	20	40	..	5	Percltg. to exhaustn., reduc. liqd. to $\frac{1}{2}$ by boilg., straing., evapg. to pil. consist.
„ Colch. Rad. ..	60	50	..	..	Percltg. to exhaustn. after macrtg. with aq. contg. 23·3% offic. acet. acid, evapg. the perclte. not above 80° C. to pil. consist.
„ Glycyrr. .. ..	..	..	..	..	Coml. extract in rolls; not less than 60% should be insol. in aq.

## Compound Extract.

Ext. Colocynth. Co.

Ext. Colocy. 16%; Aloes,  
50%; Cardam. 60 powd.,  
6%; Resin. Scam., 14%;  
Soap, dried, in coarse  
powd., 14%; Alcoh.,  
10% of total wt. of  
others.

Melting aloes by heat, adding Alcoh.,  
straing. mixt., addg. soap, Ext. Coloc.,  
and Res. Scam., heating mixt. till homo-  
geneous, withdrawg. heat, and addg. the  
Cardam.; when cold make fine powder.

Abstracta, *Abstracts*, U.S.P.

Name and Menstruum.	No. of Powder.	Menstruum.	To moisten 200 p.	Quantity reserved.	Process and Notes.
Abstractum— Aconiti.. ..	60	Alcoh.	80	170	2% tart. acid added to menstr. to exhaust aconite rt.
Belladon. .. ..	"	"	"	"	From bellad. rt.
Conii .. ..	40	"	"	"	6% hydrochl. acid added to menstr. to exhaust Conium.
Digitalis .. ..	60	"	"	"	
Hyoscyami .. ..	"	"	"	"	
Jalapæ .. ..	40	"	100	"	
Podophylli .. ..	60	"	80	"	
Senegæ .. ..	"	"	"	"	
Valerianæ .. ..	"	"	"	"	
Ignatiæ.. ..	"	Alc. 8, aq. 1.	100	"	
Nucis Vom. ..	"		"	"	



Resinæ, *Resins*, U.S.P.

Name.	Preparation.
Resina—	
Copaibæ .. ..	Bye-product, the residue left after distllg. off vol. oil from Copaiba.
Jalapæ .. ..	Perclte. jalap, in 60 powd., with Alcoh. until the tr. gives only slight turbidity with aq. Dist. off Alcoh., add conc. tr. to aq., collect, wash, drain, and dry the ppt.
Podophylli .. ..	Perclte. Podoph., in 60 powd., with Alcoh. until the tr. gives only slight turbidity with aq. Dist. off Alcoh., add conc. tr. to cold aq. acidltd. with 1% Acid. Hydrochl., collect, &c., the ppt.
Scammonii .. ..	Digest Scamm. with boilg. Alcoh. until exhausted, mix the trs., dist. off Alcoh., add the conc. trs. to aq., collect, &c., the ppt.

Pulveres, *Powders*, U.S.P.

Ingredients.	No. of Powder.	Parts per 100.	Definite Form
<b>Pulvis Antimonialis (James's).</b>			
Antim. Oxid. .. ..	..	33	1 oz.
Calc. Phosph. Prec. .. ..	..	67	2 oz.

**Pulveres—continued.**

Ingredients.						No. of Powder.	Parts per 100.	Definite Form.
<b>Pulvis Aromaticus.</b>								
Cinnamon	..	..	..	..	..	60	35	7 oz.
Ginger	..	..	..	..	..	"	35	7 oz.
Cardamon	..	..	..	..	..	crushed, no capsules.	15	3 oz.
Nutmeg	..	..	..	..	..	20	15	3 oz.
<b>Pulvis Cretæ Co.</b>								
Prep. Chalk	..	..	..	..	..	"	30	1½ oz.
Acacia	..	..	..	..	..	Fine	20	1 oz.
Sugar	..	..	..	..	..	"	50	2½ oz.
<b>Pulvis Effervescens Co. (Seidlitz).</b>								
(1) { Sod. bicarb.	..	..	..	..	..	Fine	Div. (1) into 12 p.	480 gr., or 31 G.
{ Pot. sod. tart.	..	..	..	..	..	"	Div. (2) into 12 p.	1440 gr., or 93 G.
(2) Tart. acid	..	..	..	..	..	"	Wrap separately	420 gr., or 27 G.
<b>Pulvis Glycyrrhizæ Co.</b>								
Senna	..	..	..	..	..	60	18	88 gr.
Glycyrrhiza	..	..	..	..	..	"	16	76 gr.
Fennel	..	..	..	..	..	"	8	38 gr.
Washed sulphur	..	..	..	..	..	"	8	38 gr.
Sugar	..	..	..	..	..	Fine	50	240 gr.

**Pulveres—continued.**

Ingredients.	No. of Powder.	Parts per 100.	Definite Form.
<b>Pulvis Ipecac. et Opii (Dover's).</b>			
Ipecac. . . . .	60	10	60 gr.
Powd. Opium . . . . .	..	10	60 gr.
Sug. of milk . . . . .	30	80	480 gr.
<b>Pulvis Jalapæ Co.</b>			
Jalap . . . . .	60	35	168 gr.
Pot. bitart. . . . .	Fine	65	312 gr.
<b>Pulvis Morphinæ Co. (Tully's).</b>			
(1) Camphor . . . . .	..	20	160 gr.
(2) Alcohol.. . . .	..	q.s.	
(3) Glycyrrhiza . . . . .	60	20	160 gr.
(4) Calc. Carb. Prec... . .	..	20	160 gr.
(5) Morph. sulphat. . . . .	..	1	8 gr.
Rub (1) with (2), then with (3) and (4) till uniform, then add (5), and mix well.			
<b>Pulvis Rhei Co.</b>			
Rhubarb . . . . .	60	25	120 gr.
Magnesia . . . . .	..	65	312 gr.
Ginger . . . . .	60	10	48 gr.

**Triturationes, Triturations, U.S.P.**

(Only 1 offic.)

**Trituratio Elaterini.**

Elaterin 10 p. or 6 gr.

Sug. of milk in moderately fine powd. 90 p. or 54 gr.

Mix thoroughly by trituration, adding sugar in portions with repeated mixings. To make 100 parts.

**Trochisci, Troches, Lozenges, U.S.P.**

Quantities are to make 100 troches. Solids in fine powder unless otherwise stated.

	Gr.	G.
<b>Trochisci Acidi Tannici.</b>		
Tannic acid .. .. .	100	6.5
Sugar .. .. .	1000	65
Tragac. .. .. .	25	1.6
Orange flw. water, q.s.		
<b>Trochisci Ammon. Chlord.</b>		
Ammon. Chlord. .. .. .	200	13
Sugar .. .. .	1000	65
Tragac. .. .. .	25	1.6
Syr. of Tolu, q.s.		
<b>Trochisci Catechu.</b>		
Catechu .. .. .	100	6.5
Sugar .. .. .	1000	65
Tragac. .. .. .	25	1.6
Orange flw. water, q.s.		
<b>Trochisci Cretæ.</b>		
Prep. chalk .. .. .	400	26
Acacia .. .. .	100	6.5
Nutmeg .. .. .	15	1
Sugar .. .. .	600	39

## Trochisci—continued.

	Gr.	G.
<b>Trochisci Cubebæ.</b>		
Oleoresin of cubeb. . . . .	50	3·25
Oil of sassaf. . . . .	15	1
Ext. of Glycyrr. . . . .	400	26
Acacia . . . . .	200	13
Syr. of Tolu, q.s.		
<b>Trochisci Ferri.</b>		
Hyd. oxid. of Fe, dried not above 80°C.	500	32·5
Vanilla, sliced . . . . .	10	·65
Sugar . . . . .	1500	97·5
Mucil. of trag., q.s.		
<b>Trochisci Glycyrr. et Opii.</b>		
Ext. of Glycyrr. . . . .	200	13
Ext. of opium . . . . .	5	32
Acacia . . . . .	200	13
Sugar . . . . .	300	19·5
Oil of anise . . . . .	3	·2
<b>Trochisci Ipecacuanhæ.</b>		
Ipecac. . . . .	25	1·6
Tragac. . . . .	25	1·6
Sugar . . . . .	1000	65
Syr. of orange, q.s.		
<b>Trochisci Krameriaæ.</b>		
Ext. of Krameria . . . . .	100	6·5
Sugar . . . . .	1000	65
Tragac. . . . .	25	1·6
Orange flw. water, q.s.		
<b>Trochisci Magnesiaæ.</b>		
Magnesia . . . . .	300	19·5
Nutmeg . . . . .	15	1·
Sugar . . . . .	900	58·5
Mucil. of trag., q.s.		

## Trochisci—continued.

	Gr.	G.
<b>Trochisci Menthæ Pip.</b>		
Oil of pepp.-mt. . . . .	15	1
Sugar . . . . .	1200	78
Mucil. of trag., q.s.		
<b>Trochisci Morph. et Ipecac.</b>		
Morph. sulphat. . . . .	5	.32
Ipecac. . . . .	16	1
Sugar . . . . .	2000	130
Oil of Gaulth. . . . .	2	.13
Mucil. of trag., q.s.		
<b>Trochisci Pot. Chlort.</b>		
Pot. chlort. . . . .	500	32.5
Sugar . . . . .	1900	124
Tragac. . . . .	100	6.5
Splr. of lemon . . . . .	10	.65
<b>Trochisci Sod. Bicarb.</b>		
Sod. bicarb. . . . .	300	19.5
Sugar . . . . .	900	58.5
Nutmeg . . . . .	15	1
Mucil. of trag., q.s.		
<b>Trochisci Sod. Santoninat.</b>		
Santoninate of sod. . . . .	100	6.5
Sugar . . . . .	2000	130
Tragac. . . . .	50	3.25
Orange flw. water, q.s.		
<b>Trochisci Zingiberis.</b>		
Tr. of ginger . . . . .	200	13
Tragac. . . . .	50	3.25
Sugar . . . . .	2000	130
Syr. of ginger, q.s.		

# Confectiones, *Confections*, U.S.P. (Only 2 offic.)

## Confectio Rosæ (for 100 parts).

Red rose, 60 powd.	.. .. .	8 parts.
Sugar, f. powd.	.. .. .	64 "
Clarif. honey..	.. .. .	12 "
Rose water ..	.. .. .	16 "

## Confectio Sennæ (for 100 parts).

Senna, 60 powd.	.. .. .	10 parts.
Coriander, 40 powd.	.. .. .	6 "
Cass. fist., brsd.	.. .. .	16 "
Tamarind ..	.. .. .	10 "
Prune, sliced..	.. .. .	7 "
Flg, brsd.	.. .. .	12 "
Sugar, f. powd.	.. .. .	50 "
Water ..	.. .. .	60 "

# Massæ, *Masses*, U.S.P.

Name.	Proportions by Wt.	Preparation.
Massa— Copaibæ..	94 p. Copaiba, 6 p. magnesia (recently prepared.)	Mix intimately, set aside until mixt. concretes.
Ferrî Carbonatis.	100 p. Fe sulphat., 110 p. sod. carb., 38 p. clar. honey, 25 p. sug. powd.; syrup, Aq. Dest. of each q.s.	Diss. Fesulph. and sod. carb. separately in boilg. Aq. Dest., add 25 p. syr. to the iron soln. and mix the solns. When cold pour off liqd. and wash ppt. with mixtr. of 1 syr. to 16 aq. Drain ppt., mix in honey and sug., and evap. to 100 p. Trit. Hg with honey of r. and glyc. until it is extinguished; add grad. the glycy. and Alth., and continue the tritn. until globules of Hg cease to be visible.
Hydrargyri	33 p. Hg., 5 p. Glycyrr., 25 p. Althæa, 3 p. glycerol, 3 p. honey of rose.	

# *Pilulæ, Pills, U.S.P.*

Solids in fine powder except otherwise stated. Quantities to make 100 pills.

	Gr.	G.
<b>Pilulæ Aloes.</b>		
Purfd. aloes .. .. .	200	13
Soap .. .. .	200	13
<b>Pilulæ Aloes et Asafoetidæ.</b>		
Purfd. Aloes .. .. .	400	26
Asafoetida .. .. .	300	26
Soap .. .. .	400 pills	26
<b>Pilulæ Aloes et Ferri.</b>		
Purfd. Aloes .. .. .	100	6.5
Fe sulphat., dtd. .. .. .	100	6.5
Aromt. powder .. .. .	100	6.5
Confect. of roses, q.s.		
<b>Pilulæ Aloes et Mastiches.</b>		
Purfd. Aloes .. .. .	200	13
Mastic .. .. .	50	3.25
Red rose .. .. .	50	3.25
<b>Pilulæ Aloes et Myrrhæ.</b>		
Purfd. Aloes .. .. .	200	13
Myrrh .. .. .	100	6.5
Aromt. powder .. .. .	50	3.25
Syrup, q.s.		
<b>Pilulæ Antimonii Co.</b>		
Sulphatd. Ant. ... .. .	50	3.25
Calomel .. .. .	50	3.25
Guaiac. .. .. .	100	6.50
Mucfl. of trag., q.s.		



## Pilulæ—continued.

	Gr.	G.
<b>Pilulæ Asafoetidæ.</b>		
Asafet. . . . .	300	19.5
Soap . . . . .	100	6.50
<b>Pilulæ Catharticæ Co.</b>		
Ext. Coloc. Co. . . . .	130	8.4
Abs. of Jalap . . . . .	100	6.5
Calomel . . . . .	100	6.5
Gamboge . . . . .	25	1.6
<b>Pilulæ Ferri Co.</b>		
Myrrh . . . . .	150	9.75
Sod. carb. . . . .	75	4.85
Fe sulphat. . . . .	75	4.85
Syrup, q.s.		
<b>Pilulæ Ferri Iodidi.</b>		
Reduced Fe . . . . .	60	4
Iodine . . . . .	80	5.2
Glycyrr. . . . .	50	3.25
Sugar . . . . .	50	3.25
Ext. Glycyrr. . . . .	12	0.75
Acacia . . . . .	12	0.75
Aq. . . . .		
Bals. Tolut. . . . .		
Æther Fort. . . . .		
} q.s.		
<b>Pilulæ Galbani Co.</b>		
Galbanum . . . . .	150	9.75
Myrrh . . . . .	150	9.75
Asafet. . . . .	50	3.25
Syrup, q.s.		
<b>Pilulæ Opii.</b>		
Opium, powd. . . . .	100	6.5
Soap . . . . .	25	1.62

## Pilulæ—continued.

	Gr.	G.
Pilulæ Phosphori.		
Phosphorus	1	·06
Althæa	80	5·2
Acacia	20	1·3
Glycerol	40	2·6
Aq. . . . .	20	1·3
Purf. Chlorfm.	50	3·2
Balsm. Tolut.		
Æther Fort.		
} q.s.		
Pilulæ Rhei.		
Rhubarb	300	19·5
Soap	100	6·5
Pilulæ Rhei Co.		
Rhubarb	200	13
Purfd. Aloes	150	9·75
Myrrh	100	6·5
Oil. of pepp.-mt.	10	0·65

## Cerata, Cerates, U.S.P.

*Made by Fusion.*

Ceratum	.. .. .	30 p. Cera Alb. and 70 p. lard; fuse.
„ Cantharidis	.. .. .	30 p. Cera Fl., 20 p. resin, 25 p. lard; fuse, strain, add 35 p. canthar., dig. $\frac{1}{4}$ hr.
„ Cetacei	.. .. .	10 p. Cetac., 35 p. Cera Alb., 55 p. Ol. Oliv.; fuse.
„ Extracti thar.	Can- .. .. .	15 p. resin, 35 p. Cera Fl., 35 p. lard, fuse, dig. with 15 p. Ext. Canthar., strain, stir.
„ Resine	.. .. .	35 p. resin, 15 p. Cera Fl., 50 p. lard, strain, cool.
„ Sabinæ	.. .. .	90 p. Cer. Resinæ, fuse, add 25 p. Ext. Sabinæ Fl., evap. off alcohol., stir while cooling.

## Ceratums—

- „ Camphoræ .. 3 p. camph. linimnt., 20 p. Ol. Oliv.;  
 mix., incorp. with 85 p. of cerate.  
 „ Plumbi Subacet. 20 p. soln. of Pb. subacet. with 80 p.  
 camph. cerate.

*Made by incorporation.*

## Unguenta, Ointments, U.S.P.

*Made by Fusion.*

- Unguentum .. .. 80 p. lard, 20 p. Cera Fl.  
 „ Aquæ Rosæ .. 50 p. Ol. Amgd. Exp., 10 p. Cétac.,  
 10 p. Cera Alb.; fuse at mod. heat,  
 add grad. 30 p. Aq. Ros., stir.  
 „ Diachylon .. 60 p. Emp. Plumb., 39 p. Ol. Oliv.;  
 fuse, cool, add 1 p. Ol. Lavand., stir  
 till cold.  
 „ Mezerei .. .. 80 p. lard, 12 p. Cera Fl.; fuse, add  
 25 p. Ext. Mez. Fl., stir constantly  
 till alcob. has evapd.  
 „ Picis Liqd. .. 50 p. suet, fuse, add 50 p. tar, strain,  
 stir till cool.

*Made by Incorporation.*

- „ Acidi Carbol. .. 10 p. carbol. acid, 90 p. Unguentum.  
 „ Acidi Gallici .. 10 p. gall. acid, 90 p. benzointd. lard.  
 „ Acidi Tannici.. 10 p. tannic acid, 90 p. benzointd. lard.  
 „ Belladonnæ .. 10 p. Ext. Bellad. Alcoh., 6 p. Alcoh.,  
 rub till soft, then incorp. with 84 p.  
 benzointd. lard.  
 „ Chrysarobini .. 10 p. Chrys., 90 p. benzointd. lard.  
 „ Gallicæ .. 10 p. powd. nutgall, 90 p. benztd. lard.  
 „ Hydrargyri .. 45 p. Hg, 4 p. Tr. Benz. Co.; mix, in-  
 corp. with 10 p. Ung. Hydrarg., then  
 add 22 p. lard and 22 p. suet pre-  
 viously melted together and partially  
 cooled; continue tritn. until globules  
 of Hg cease to be visible under mag-  
 nif. power of 10 diameters.  
 „ Hydrargyri .. 10 p. ammontd. Hg, 90 p. benztd. lard;  
 Ammon. incorpt.  
 „ Hydrarg. Oxid. 10 p. yell. HgO, 90 p. Unguentum; in-  
 Fl. corporate.

## Unguentum—

- „ Hydrag. Oxid. 10 p. red HgO, rub with a little Ung.,  
 then add suff. Ung. to make 100 p.  
 „ Iodi . . . . 4 p. I, 1 p. pot. iod., 2 p. aq.; rub  
 together, incorp. with 93 p. benztd.  
 lard.  
 „ Iodoformi. . . 10 p. iodoform, 90 p. benztd. lard; in-  
 corp.  
 „ Plumbi Carbo- 10 p. lead carb., 90 p. benztd. lard;  
 nati. incorp.  
 „ Plumbi Iod. . . 10 p. lead iod., 90 p. benztd. lard;  
 incorp.  
 „ Potass. Iod. . . 12 p. pot. iod., 1 p. sod. hyposulphite;  
 diss. in 6 p. boil. aq., then incorp.  
 with 81 p. benztd. lard.  
 „ Stramonii . . 10 p. Ext. Stramonii., 5 p. aq.; rub  
 till soft, then incorp. with 85 p.  
 benztd. lard.  
 „ Sulphuris . . 30 p. subl. sulphur, incorp. with 30 p.  
 benztd. lard.  
 „ Sulphuris Alk. 20 p. washd. sulph., 10 p. pot. carb.,  
 5 p. aq.; rub, then incorp. with  
 65 p. benztd. lard.  
 „ Veratrine . . 4 p. veratr., 6 p. alcob.; rub, then  
 incorp. with 96 p. benztd. lard.  
 „ Zinci Oxid. . . 20 p. Zn. oxid., 20 p. melted benztd.  
 lard; rub, then add benztd. lard to  
 100 p.

*Made by Chemical Reaction.*

- „ Hydrag. Nitrat. 7 p. Hg, 17 p. nitric acid, 76 p. lard  
 oil; heat oil to 70° C., add 7 p. acid.  
 Diss. Hg in 10 p. acid and mix the  
 liqds.

**Emplastra, Plasters, U.S.P.***Containing Gum-resins as Bases.*

## Emplastrum—

- Ammoniaci . . . . Dig. 100 p. ammonc. in 140 p. dild.  
 acct. acid until emulsionised; strain,  
 and evap. till a small portn. hardens  
 on cooling.

## Emplastrum—

Ammoniac cum  
Hydrag.

Add 1 p. subd. sulph. to 8 p. hot olive oil; stir, trit. 180 p. Hg with the mixt.; then incorp. 720 p. of ammoniac. prev. digested in 1000 p. dil. acetic acid until emulsd.; lastly, add (melted) lead plast. to 1000 p.

Asafetide . . . . Dig. 35 p. Asaf. and 15 p. Galbanum with 120 p. alcob.; strain, evap. to consist. of honey; lastly, add 35 p. lead plast. and 15 p. Cera Fl. (melted), evap.

Galban . . . . Fuse 16 p. Galb. with 2 p. turptn.; incorp. with 6 p. melted Pix Burg., then with 76 p. melted lead plast.

*Containing Lead or Resin Plaster as Basis.*

Arnica . . . . Incorp. 50 p. Ext. Arn. Rad. with 100 p. res. plast. (melted).

Belladonna . . . . Exhaust 100 p. bell. rt. with alcob., evap. at 122° F. to soft. ext.; incorp. with melted resin plaster to 100 p.

Ferri . . . . Melt 70 p. lead plast. with 10 p. Canada turptn. and 10 p. Pix Burg.; add 14 p. hyd. oxid. iron, stir till cold.

Hydrargyri . . . . Fuse 10 p. olive oil with 10 p. resin, and when cool incorp. with 30 p. Hg; add 50 p. lead plast.

Opii . . . . Rub 6 p. Ext. Opii with 8 p. aq. till soft; add 18 p. Pix Burg. and 76 p. lead plast. prev. melted together; heat, and stir till proper consist.

Plumbi . . . . Rub grad. 32 p. lead oxide with 60 p. olive oil, add 10 p. aq.; boil, adding water as it evaporates.

Resinae . . . . Add 14 p. resin to 80 p. lead plast. and 6 p. Cera Fl. prev. melted; mix.

Saponis . . . . Rub 10 p. soap with aq. to soft mass; mix with 90 p. lead plast. prev. melted.

*Containing Burgundy or Canada Pitch as Basis.*

## Emplastrum—

- Picis Burgund. . . Fuse 90 p. Pix Burg. with 10 p. Cera Fl., stir till cool.
- Picis Canad. . . Fuse 90 p. Pix Canad. with 10 p. Cera Fl., stir till cool.
- Picis cum Canthar. Heat 8 p. cerate of canth. to 212° F., strain, add 92 p. Pix Burg.; melt, stir till cool.

*Official Spread Plasters.*

- Capsici . . . . Spread thin layer of res. plast. upon muslin, cool; apply thin coat of Oleores. Capsici.
- Icthyocolle . . . Diss. 10 p. isingl. in hot aq. to 100 p.; spread  $\frac{1}{4}$  upon taffeta; add 1 p. glycol. and 40 p. alcob. to second  $\frac{1}{4}$  and apply to taffeta, coat reverse with Tr. Benz.; dry.

*Chartæ, Papers, U.S.P.*

- Charta Canthar. Cera Alb. 8 p., Cetac. 3 p., Ol. Oliv. 4 p., Pix (Canad. 1 p., Canthar. (40 powd.) 1 p., aq. 10 p.; mix all, boil 2 hrs., stirring. Strain without expressg., coat sized paper on one side with the liqd.
- Charta Potass. Nit. Pot. nit. 20 p., Aq. Dest. 80 p. Diss. salt, immerse unsized paper, and dry.
- Charta Sinapis. Sinap. Nig. in 60 powd., benzin, gutta-percha soln.; of each q.s. Perc. must. with benzin until free from oil, mix air-dried must. with gutta to semi-liqd. consist., apply to stiff sized paper. Strength should be abt. 6 grs. must. per sq. inch.

A LIST OF THE AMERICAN ECLECTIC RESINOIDS MOST COMMONLY USED.  
(Adapted from Remington's Pharmacy, &c.)

Name.	From.	Plant.	Dose.
Alnuin .. ..	Bark	<i>Alnus rubra</i> .. .. .	1 to 3 gr.
Ampelopsin .. ..	Bk., brnchs.	<i>Ampelopsis quinquefolia</i> .. .. .	2 to 8 gr.
Apocynin .. ..	Root	<i>Apocynum androsaemifolium</i> .. .. .	$\frac{1}{2}$ to 2 gr.
Asclepidin .. ..	"	<i>Asclepias tuberosa</i> .. .. .	1 to 5 gr.
Baptisin .. ..	"	<i>Baptisia tinctoria</i> .. .. .	$\frac{1}{2}$ to 1 gr.
Barosmin .. ..	Lvs.	<i>Barosma (betulina, &amp;c.)</i> .. .. .	1 to 4 gr.
Caulophyllin .. ..	Root	<i>Caulophyllum thalictroides</i> .. .. .	$\frac{1}{2}$ to 1 gr.
Ceanothin .. ..	"	<i>Ceanothus americanus</i> .. .. .	—
Cerasein .. ..	Bark	<i>Cerasus virginiana</i> .. .. .	5 to 10 gr.
Chelonin .. ..	Herb	<i>Chelone glabra</i> .. .. .	1 to 2 gr.
Chimaphilin .. ..	Lvs.	<i>Chimaphila umbellata</i> .. .. .	1 to 4 gr.
Cimicifugin .. ..	Rhiz.	<i>Cimicifuga racemosa</i> .. .. .	1 to 6 gr.
Collinsonin .. ..	Herb	<i>Collinsonia canadensis</i> .. .. .	3 gr.
Cornin .. ..	Root Bk.	<i>Cornus florida</i> .. .. .	5 gr.
Corydalin .. ..	Tubers	<i>Dicentra canadensis</i> .. .. .	$\frac{1}{2}$ to 2 gr.
Cypripedin .. ..	Rhiz.	<i>Cypripedium pubescens</i> .. .. .	2 gr.
Dioscorein .. ..	Root	<i>Dioscorea villosa</i> .. .. .	2 to 5 gr.
Euonymin .. ..	Bark	<i>Euonymus atropurpureus</i> .. .. .	$\frac{1}{2}$ to 4 gr.
Eupatorin .. ..	Lvs., flwg. tps.	<i>Eupatorium perfoliatum</i> .. .. .	2 to 4 gr.
Euphorbin .. ..	Root	<i>Euphorbia corollata</i> .. .. .	$\frac{1}{2}$ to 2 gr.
Fraserin .. ..	"	<i>Fraseria Walteri</i> .. .. .	1 to 5 gr.
Gelsemin .. ..	Rhiz.	<i>Gelsemium sempervirens</i> .. .. .	$\frac{1}{2}$ to 2 gr.
Hamamelin .. ..	Root	<i>Hamamelis virginica</i> .. .. .	5 gr.
Helonin .. ..	"	<i>Helonias dioica</i> .. .. .	$\frac{1}{2}$ to 2 gr.
Hydrastin .. ..	Rhiz.	<i>Hydrastis canadensis</i> .. .. .	3 to 5 gr.

A LIST OF THE AMERICAN ECLECTIC RESINOIDS MOST COMMONLY USED—*continued.*

Name.	From.	Plant.	Dose.
Juglandin .. ..	Root Bk.	Juglans cinerea .. ..	2 to 5 gr.
Leptandrin .. ..	Root	Leptandra virginica .. ..	2 to 4 gr.
Lupulin .. ..	Strob.	Humulus Lupulus .. ..	5 to 10 gr.
Lycopin .. ..	—	Lycopus virginicus .. ..	3 to 5 gr.
Macrotin .. ..	—	See Cimicifugin.	
Menisperm. .. ..	—	Menispermum canadense .. ..	2 gr.
Myricin .. ..	—	Myrica cerifera .. ..	2 to 8 gr.
Phytolaccin .. ..	—	Phytolacca decandra .. ..	$\frac{1}{4}$ to 1 gr.
Populin .. ..	Bark	Populus tremuloides .. ..	2 to 5 gr.
Prunin .. ..	—	Cerasus serotina .. ..	2 gr.
Ptelein .. ..	Root	Ptelea trifoliata .. ..	—
Rhein .. ..	—	Rheum var. spec. .. ..	2 to 4 gr.
Rhusin .. ..	Lvs.	Rhus glabrum .. ..	—
Rumic .. ..	—	Rumex crispus .. ..	2 gr.
Sanguinarin .. ..	—	Sanguinaria canadensis .. ..	$\frac{1}{4}$ to 2 gr.
Scutellarin .. ..	Herb	Scutellaria lateriflora .. ..	3 to 6 gr.
Senecin .. ..	—	Senecio gracilis .. ..	3 to 5 gr.
Senecionin .. ..	—	" .. ..	1 to 5 gr.
Smilasin .. ..	—	Smilax var. spec. .. ..	2 to 5 gr.
Stillingin .. ..	—	Stillingia sylvatica .. ..	$\frac{1}{4}$ to 1 gr.
Trillin .. ..	—	Trillium pendulum .. ..	3 to 6 gr.
Viburnin .. ..	—	Viburnum opulus .. ..	2 gr.

These so-called active principles are precipitated by pouring a conc. alcoholic fld. extract into water. They must not be confounded with the active principles, although the names are often exactly the same.



# TABLE SHOWING THE BOTANICAL DERIVATION OF THE OFFICIAL DRUGS (arranged according to Bentley's System), their Source and Active Principles.

The Table which follows shows the official articles of vegetable *materialia medica* arranged according to a botanical system. The system chosen is that given in the well known manual by Professor Bentley, one of the three joint editors of the British Pharmacopœia. This system will be found not to differ considerably from the arrangement adopted in standard manuals of *Materialia Medica*, among which Dr. Laud-r Branton's 'Pharmacology,' and the admirable 'Practical Pharmacy' of Professor Remington may be mentioned as among the best and most modern. In order to impart information briefly, and to facilitate reference, a variety of types has been used. The Natural Orders are shown thus (**RANUNCULACEÆ**); and the actual names of the drugs are printed in capitals: in large capitals when contained in the B.P., or in the B.P. and U.S.P. (as ACONITI RADIX), and in small capitals when official in the U.S.P. and not in the B.P. (as HYDRASTIS). The same arrangement is adopted when a drug has one name in the B.P. and another in the U.S.P., the name in the latter being given in the smaller type *in brackets*. It was not thought necessary to observe this practice when the name in the U.S.P. differs from that in the B.P. merely in wanting the term showing the physiological derivation from the plant, as for example, to distinguish between ACONITI RADIX and ACONITUM. The nomenclature has been made as far as possible systematic, the termination -in being reserved for glucosides, bitter principles, resins, &c., and the termination -ine for alkaloids. In many cases a further distinction is attempted, thus alkaloids are printed in italics (as *quinine*), resinous bodies in open type (as podophyllin), and glucosides in antique type (as digitalin). The names of plants are written thus (**Aconitum Napellus**). The drugs of the German Pharmacopœia, and those marked with an asterisk in the Codex Medicamentarius, not contained in the B.P. or U.S.P., are referred to briefly in smaller type. In many cases the popular name of the drug is added in brackets, as (monkshead).

TABLE SHOWING THE BOTANICAL DERIVATION OF THE OFFICIAL DRUGS, with their Active Principles, arranged according to Bentley's System of Classification.

**SUB-KINGDOM I. PHANEROGAMIA.**—Plants with evident flowers and propagated by seeds containing an embryo with one or more cotyledons.

**CLASS 1. DICOTYLEDONES.**—Embryo dicotyledonous; germination exorhizal (true root); stem exogenous; leaves with reticulated venation; flowers quinary or quaternary.

**Division 1. ANGIOSPERMIA.**—Ovules enclosed in ovary and indirectly fertilised.

Sub-class 1. *Thalamifloræ*.—Usually calyx and corolla; petals inserted on thalamus; stamens arising directly from thalamus or placed on outside of hypogynous disc.

Sub-class 2. *Calycifloræ*.—Usually calyx and corolla; petals inserted on calyx; stamens perigynous or epigynous.

(a) *Perigynæ*.—Calyx free or nearly, ovary superior.

(b) *Epigynæ*.—Calyx adherent, ovary inferior.

Sub-class 3. *Corollifloræ*.—Calyx, and corolla, with united petals; stamens inserted on corolla or ovary, or free arising from thalamus.

(a) *Epigynæ*.—Calyx adherent and ovary inferior.

(b) *Hypostamineæ*.—Stamens inserted on thalamus, non-adherent to corolla, and ovary superior.

(c) *Epipeptalæ* (*Epicorollæ*).—Corolla arising from thalamus with stamens adhering, ovary superior.

Sub-class 4. *Monochlamydeæ* (*Apetalæ* or *Incompleta*).—Calyx only, or without calyx or corolla.

# TABLE (continued).

**Division 2. GYMNOSPERMIA.**—Ovules naked and directly fertilised.

**CLASS 2. MONOCOTYLEDONES.**—Embryo monocotyledonous; germination endorhizal (secondary root); stem endogenous; leaves parallel venation; flowers ternary.

**Sub-class 1. *Petaloidæ (Floridæ).***—Leaves parallel (rarely reticulated) permanent (occasionally deciduous); perianth verticillate, coloured (rarely scaly), but sometimes absent.

(a) *Epigynæ*, flowers usually hermaphrodite; perianth adherent, ovary inferior.

(b) *Hypogynæ*, flowers usually hermaphrodite; perianth free, ovary superior.

(c) *Diclines*, flowers usually unisexual; perianth absent or rudimentary.

**Sub-class 2. *Glumacæ (Glumiferæ).***—Leaves parallel veined, permanent; flowers no perianth but consist of imbricated bracts (glumes).

**SUB-KINGDOM II. CRYPTOGRAMIA.**—Plants flowerless and propagated by spores.

**FORMING CLASS 3. COTYLEDONES.**—Acotyledonous, germination heterorhizal (vague); stem, present, and acrogenous if woody, or absent; leaves, present with veins forked, or absent.

**Sub-class 1. *Acrogenæ (Cormophyta).***—Stems and leaves distinguishable; stomata present.

**Sub-class 2. *Thallogenæ (Thallophyta).***—Stems and leaves indistinguishable; stomata absent.

## FLOWERING PLANTS.

## DICOTYLEDONES. ANGIOSPERMIA.

## THALAMIFLORE.

**RANUNCULACEÆ** (buttercup, crowfoot ord.).

*Herbs*, rarely *shrubs*, with colorless, acrid, watery, juice. *Sep.*, *pet.*, and *stam.*, hypogæus. *Corolla* imbricated æstivtu. *Stamens* numerous, hypogæus; *anthers* adnate with longitud. *dehis.* *Carpels* more or less distinct (some excep.). *Seeds* with horny homologus, *albumen*, anatropal.

*Characters*.—Generally acrid, sometimes vesicant; some poisonous, others bitter and tonic.

**ACONITI RADIX** (et FOL. B.P.). **Aconitum Napellus** (monkshood). Britain, Germany, &c. *Aconitine*.

**CIMICIFUGÆ RHIZOMA**. **Cimicifuga racemosa** (*Actæa racemosa*) (black snakeroot). Canada, U. States. Act. prin. undetermined.

**HYDRASTIS**. **Hydrastis canadensis** (golden seal, rhiz. and rootls.). Canada, N. U. States, *Berberiac*, *hydrastine*.

**PODOPHYLLI RESINA**. **Podophyllum peltatum**. U. States. *Podophyllin*, *berberine*.

**PULSATILLA**. **Anemone Pulsatilla**, **A. pratensis**, **A. patens** var. *Nuttalliana* (herb). N. America, Europe, Siberia. Vol. oil, decomp. into anemonie acid and anemonin (act. prin.).

*Aconitum ferox*, *Codex*.

**STAPHISAGRIÆ SEMINA**. **Delphinium Staphisagria** (*stavesacre*). S. and W. Europe, Asia Minor. *Staphisagrine*, *delphinine*.

**MAGNOLIACEÆ.**

*Trees or Shrubs*.—*Leaves* alternate and leathery; *stipules* (usually present) large and sheathing, decid. *Sep.* and *pet.* ternary, hypogyns.; *sep.* decid., *pet.* imbricated aestivn. *Carpels* distinct or coherent. *Albumen* homogous.

*Characters*.—Bitter, tonic, aromatic.

**ANISI STELLATI FRUCTUS (ILLICIUM).**  
*Illicium anisatum* (star anise). China. Vol.  
 oil (also offic.).

Drimys Winteri var. granatensis (Winter's bark), Codex.

**MENISPERMACEÆ** (moonseed ord.).

*Shrubs*, climb. or trailg. *Leaves* alternat., simple, exstipt., usually entire. *Flowers* usually dioecious, rarely perfect or polygyns. *Barren flower*.—*Calyx* and *corolla* ternary arrang., usually two whorls, imbricate or valvate. *Stamens* distinct, sometimes monadelph., *carpels* rudim. or absent. *Fertile flower*.—*sep.* and *pet.* resemb. barren flower; *stamens* imperf. or wanting. *Carpels* usually 3 (or 6) upon a gynophore, distinct, 1-celled, 1 curved ovule. *Fruits* drupac., curved round placenta, 1-celled. *Seeds* solitary and curved, *embryo* curved; *albumen* absent, or present, and then homog. or partially divided by projections of inner membr. of seed. Order, very heteromorphous.

*Characters*.—Narcotic and bitter; a few mucilagins., some tonic.

**CALUMBÆ RADIX. Jateorrhiza**  
*Calumba* (Cocculus palmatus). E. Africa (Ibo to Zambesi). *Berberine*, calumbin (neut. prin.).

**MENISPERMUM. Menispermum canadense**  
 (rhiz. and rootlts.) (Canadian moonseed). U. States, Canada. *Berberine*, and a colorlss. alkid.

**PAREIRÆ RADIX. Chondodendron**  
*tomentosum*. Brazil. *Buxine* (syn. *petosine*, ident. with *berberine*).

PICROTOXINUM ( $C_9H_{10}O_4$ ), from seeds of *Anamirta paniculata*. E. Indies, Assam, Malayan Isl.

## BERBERIDACEÆ.

CAULOPHYLLUM. *Caulophyllum thalictroides* (blue cohosh, rhiz. and rootlts). U. States. Saponin.

## PAPAVERACEÆ (poppy ord.).

*Herbs* with milky juice. *Leaves* alternat. exstiplt. *Sepals* 2 (or 3), caducous. *Petals* 4 (or 6, or wanting); usually crumpled activtn., hypogyn. *Stamens* usually numerous, hypogyn.; *anthers* 2-celled, innate. Ovary 1-celled, with 2 (or more) parietal placentas projecting into cavity; *styles* absent or very short; *stigmas* 2 (or many), alternat. with placentas and opposite imperfect dissepiments.; *ovules* numerous. *Fruit* 1-celled, pod or capsular. *Seeds* numerous; *embryo* in fleshy-oily albumen.

Characters. — Mostly narcotic, some acrid others purgvtv.

CHELIDONIUM. *Chelidonium majus* (celandine, root). U. States, Europe. *Chelidonine*, *chelerythrine* syn. *sanguinarine*?

PAPAVERIS CAPSULÆ (not U. S. P.). Papaver somniferum. *Britain*.

OPIUM, from same grown in Asia Minor. *Morphine*, *papaverine*, *codeine*, *narcotine*, *thebaine*, &c.

RIEADOS PETALA (not U. S. P.). Papaver Rhœas (red poppy). Britain. Color. matters.

SANGUINARIA. *Sanguinaria canadensis* (blood-"root," rhiz.) (in autumn). U. States, Canada. *Sanguinarine*.

**Fumariaceæ.** *Fumaria officinalis*, Fumitory. Codex \*  
Papaveraceæ-fumariæ).

**CRUCIFERÆ** (cabbage, turnip, radish, cress, &c., ord.).

Generally ebracteated *herbs*. *Sep.* and *pet.* 4, decid., regul.; *pet.* cruciate. *Stigmas* 2, oppos. placentas. *Stamens* tetradynms. (characteristic). *Fruit* siliqua or silicula. *Seeds* stalked, without albumen.

Characters. — Antiscorbutic, pungent, frequently acrid; none poisonous. Seeds often cont. vol. oil.

**SINAPIS.** *Brassica (Sinapis) alba* and *B. (S.) nigra* (mustard seeds). Europe, &c.; cultd. *B. alba* cont. sinalbin and myrosin; *B. nig.* sinigrin and myrosin.

**ARMORACIÆ RADIX** (not U.S.P.). *Cochlearia Armoracea* (horse-radish). Britain. Vol. oil of mustard after being cut.

*Cochlearia officinalis* (scurvy grass), G.P. and Codex \*.

**VIOLACEÆ** (violet ord.).

**VIOLA TRICOLOR.** *Viola tricolor* (pansy, herb). Europe, N. America; cult. *Violine*.

**MALVACEÆ** (mallow ord.).

*Leaves* altern. simple, stipult. *Flowers* regular. *Calyx* valvate or circular æstvtn. *Pet.* twisted æstvtn. *Stamens* hypogyns., numerous; *anthers* 1-celled, reniform, dehis. transvrs.; *filaments* form column. *Carpels* distinct or united. *Seeds* little (or no) albumen; *embryo* curved; *cotyledons* twisted.

**GOSSYPIUM.** *Gossypium barbadense* (*G.* herbaceum, U.S.P.) and other spec. (cotton-

seed hairs. (Also fix. oil; and root-bark, U.S.P.).  
S. U. States, India, Egypt; cult. Bark cont.  
colorless acid resin.

**ALTHEA.** *Althea officinalis* (marsh mallow,  
root). U. States. Mucilage.

*Malva sylvestris* (and vulgaris, com. mallow), G.P.

**BYTTNERIACEÆ** (chocolate ord.), generally regarded as a division of **Sterculiaceæ** (silk cotton ord.).

**OLEUM THEOBROMATIS** (Ol. Theobromæ, U.S.P.). *Theobroma cacao*. Cent., N., and S. America. Fixed concrete oil.

**Tiliaceæ** (lime-tree or linden ord.).

*Tilia sylvestris* and *T. platyphylla*; Codex.

*Tilia parvifolia* and *T. grandifolia*; G.P.

**Dipteraceæ** *Hopea micrantha*, H. splendida; G.P.

**Ternströmiaceæ** (tea or camellia ord.).

*Thea chinensis* (*Camilla Thea*, tea); Codex\*.

**GUTTIFERÆ** (mangosteen ord.).

**CAMBOGIA.** *Garcinia Hanburii* (gamboge). Siam, Cochin China. Gambogic acid, gum, &c.

**SAPONDACEÆ** (soapwort ord.).

**GUARANA.** *Paullinia sorbilis*. (From seeds.) Brazil. *Caffeine*, tannic acid.

**POLYGALACEÆ** (milkwort ord.).

**SENEGÆ RADIX.** *Polygala Senega* (snake-root). N. America. Polygalic acid (? syn. saponin).



**KRAMERIACEÆ** (rhatany ord.).

**KRAMERIE RADIX.** *Krameria triandra* (Peruvian rhatany) and *K. Ixina* (*K. tomentosa*) (*Savannilla* rhatany). Bolivia and Peru, and New Granada respectively. Ratanhiatannic acid, Rathanin, &c.

**ERYTHROXYLACEÆ.**

**COCA** (*ERYTHROXYLON*, U.S.P.). **ErythroxylonCoca** (leaves). Peru, Bolivia. *Cocaine, hygrine.*

**MELIACEÆ** (melia ord.).

**AZEDARACH.** *Melia Azedarach* (root-bark). China, &c. A resins, principle.

**AURANTIACEÆ** (orange, lemon, &c., ord.).

*Trees or shrubs, with alternat. dotted exstip. leaves with blade articulat. to petiole. Flowers regular. Calyx and corolla 3 to 5 div., corolla slightly imbricate and decid. Stamens hypogyns., equal (or multiple) to pet., flat or coherent filaments. Disk hypogyns., bearing pet. and stam. Ovary multicellular; placentas axile; style 1. Fruit indehis. Seeds exalbuminous; embryo straight; radicle short; cotyledons fleshy.*

Characters.—Fragrant vol. oils, bitter tonic rind, acid or sweet pulp of fruit.

**AURANTII FLORES, FRUCTUS, ET CORTEX.** *Citrus vulgaris* (bitter orange). S. Europe and other warm countries; cult.

*Aurantii Flores*, also from *Citrus aurantium* (sweet orange), largely cult. in warm regions. Vol. oil. Rind, hesperidin. Pulp, citric acid.

*Aurantii Dulcis Cortex* (U.S.P.). The rind of *C. aurantium*. Cont. hesperidin, vol. oil, citric acid.

**BELÆ FRUCTUS** (not U.S.P.). **Ægle Marmelos**. Malabar, Coromandel. Comp. not well ascertained.

**LIMONIS CORTEX ET SUCCUS**. **Citrus Limonum** (lemon). S. Europe, W. Indies, &c. Vol. oil, hesperidin (peel), citric acid (pulp).

**OLEUM BERGAMI**. **Citrus Bergamia**, var. *vulgaris* (bergamot), Calabria. Vol. oil, citric acid.

### **VITACEÆ** (vine ord.).

**UVÆ** (not U.S.P.). **Vitis vinifera** (the vine). Spain and other warm countries. Tartaric acid, glucose.

### **CANELLACEÆ** (canella ord.).

**CANELLÆ ALBÆ CORTEX** (not U.S.P.). **Canella alba**. S. Florida, W. Indies. Several vol. oils, canellin, no tannin.

### **RUTACEÆ** (ruc ord.).

**BUCHU FOLIA**. **Barosma betulina**, *B. crenulata*, *B. serratifolia*. Cape of Good Hope. Vol. oil.

**CUSPARIÆ CORTEX** (not U.S.P.). **Galea Cusparia** (angostura). Trop. S. America. Vol. oil, cusparin?, *angosturine*.

**JABORANDI** (**PILOCARPUS**). **Pilocarpus pennatifolius** (leadts.). Brazil. Vol. oil, *pilocarpine*, *jaborine*.

**OLEUM RUTÆ**. **Ruta graveolens** (ruc). Europe, &c.; cult. Vol. oil, contg. a hydrocarbon and an oxygenated oil.

**XANTHOXYLACEÆ** (very similar to Rutaceæ).

**XANTHOXYLUM.** *Xanthoxylum fraxineum*, *X. carolinianum* (prickly ash, bark). U. States. Vol. oil, resins.

**SIMARUBACEÆ** (quassia or simaruba ord.).

**QUASSIÆ LIGNUM.** *Picræna excelsa* (quassia). W. Indies. Quassian (neut. bitter prin.).

**ZYGOPHYLLACEÆ** (bean caper ord.).

**GUAIACUM LIGNUM.** *Guaiacum officinale*, *G. Sanctum* (*lignum vite*). Hayti, Jamaica. Resins.

**LINACEÆ** (flax ord.).

*Herbs*, rarely *shrubs*, exstipul. entire leaves. *Flowers*, hypogyns., regul., symmet. *Sep.* 3 to 5, persist. and imbricate; *pet.* 3 to 5, fugacious and twisted in aestivth.; *stamens* 3 to 5, the fertile ones uniting at bases, and having toothlike abortv. ones alternating. *Ovary* 3 to 5-celled, *styles* distinct, *stigmas* capitate. *Fruit* capsular, many-celled, each cell more or less divided by spurious dissepiment, and each divis. cont. one seed. *Seeds*, little or no albumen, straight embryo.

**Characters.**—Tenacious liber fibres, mucilgns. and oily seeds; some bitter and purgvtv.

**LINI SEMINA.** *Linum usitatissimum* (flax). Britain, &c.; cult. generally. Fix oil, mucilage.

**GERANIACEÆ** (crane's bill ord.).

**GERANIUM.** *Geranium maculatum* (rhiz.). U. States. Tannic and gallic acids.

## DICOTYLEDONES. ANGIOSPERMIA.

## CALYCIFLORÆ. Perigynæ.

## CELASTRACEÆ (spindle-tree ord.).

**EUONYMUS.** *Euonymus atropurpureus* (bark). U. States. *Euonymin* (bitt. prin.), resins.

**RHAMNACEÆ** (buckthorn ord.).

Small trees or shrubs. *Leaves* simple. *Flowers* usually perfect; rarely unisexual. *Calyx* 4 to 5-parted, valvate. *Petal.* and *stam.* distinct perigyns. equal in number to divis. of calyx; *pet.* sometimes wanting. *Ovary* superior, surrounded by fleshy disk. *Fruit* 2, 3, or 4-celled, with one erect seed in each cell. *Seed* usually albuminous, without aril.

**Characters.**—Some acrid and purg., others bitter febrif. and tonic, a few with edible fruits.

**RHAMNI FRANGULÆ CORTEX** (FRANGULA). *Rhamnus* Frangula. Britain, Europe, &c. Frangulin.

**RHAMNI PURSHIANI CORTEX** (not U.S.P.). *Rhamnus Purshianus* (sacred bark). North America. Purg. prin. undetermined.

*Rhamnus catharticus* (buckthorn) (i.P.).

**ANACARDIACEÆ** (cashew-nut or sumach ord.). (Terebinthaceæ.)

**MASTICHE.** *Pistacia Lentiscus*. Scio. Masticic acid, masticin, &c.

*Rhus glabra*. *Rhus glabra* (sumach, fruit). U. States. Tannin.

*Rhus Toxicodendron*. *Rhus Toxicodendron* (poison oak or ivy, leaves). U. States. A vol. acid.

**AMYRIDACEÆ** or **BURSERACEÆ**  
(myrrh and frankincense ord.).

**ELIEMI** (not U.S.P.), referred to **Canarium** commune, but source unknown. **Manilla.**  
Two resins, vol. oil.

**MYRRHA.** **Balsamodendron Myrrha.**  
**Arabia Felix, Abyssinia.** **Arabin, myrrhic**  
**acid, vol. oil.**

*Balsamodendrum africanum, Codex \*.*

**LEGUMINOSÆ** (bean, pea, &c., ord.).

*Herbs, shrubs, or trees. Leaves usually alternate, stipulate, compd. Fls. reg. or irreg. Calyx infer., 5-parted; odd divis. anterior. Petals 5, fewer or none, perigyn., odd one if present posterior. Stamens distinct, or united into 1 or more bundles. Ovary superior, simple, 1-celled; style simple, arising from ventral suture. Fruit a legume, lomentum, or rarely drupe. Seeds one or more, with or without alburnen.*

Sub ord. 1. **Papilionaceæ.**

*Pet. papilones., imbricate æstivtn., odd petal exterior.*

**BALSAMUM PERUVIANUM.** **Myroxylon Pareiræ.** **Salvador** (Cent. America).  
**Benzoic and cinnamic acids, resin, vol. oil.**

**BALSAMUM TOLUTANUM.** **Myroxylon toluifera.** **New Granada.** Same constit. as **Bals. Peruv.**

**CHIRYSAROBINUM** (goa or araroba powd. Ext. of. U.S.P.). **Andira Araroba.** **India.**  
**Chysophanic acid.**

**GLYCYRRHIZÆ RADIX.** **Glycyrrhiza glabra.** **Engl., France, Germ., S. Europe.**  
**Glycyrrhizin, starch, sugar, &c.**

**HÆMATOXYLI LIGNUM.** **Hæmatoxylum campechianum** (logwood). **Cam-**  
s 2

peachy, Honduras, Jamaica. Hematoxylin (haematin).

KINO. *Pterocarpus marsupium*. Malabar. Kino-tannic acid, pyrocatechin.

PHYSOSTIGMATIS SEMEN. Physostigma venenosum (Calabar bean). W. Africa. *Physostigmine* (*eserine*), *calabarine*.

PTEROCARPI LIGNUM (SANTALUM RUBRUM). *Pterocarpus santalinus* (red sanders). Ceylon. Red color. matter.

SCOPARII CACUMINA. *Cytisus scoparius* (Sarthamnus sc.) (broom). Britain, &c. Scoparin (neut. prin.), *Sparteine* (volatile).

TRAGACANTHIA. *Astragalus gummifer* and some other spec. of A. Asia Minor. Arabin, bassorin (insol. gum).

*Melilotus officinalis* and *M. altissimus*, G.P.

*Frigonella Fenum graecum*, G.P.

Sub-ord. 2. *Cæsalpinieæ*.

*Petals* not papilionæ., imbricate aestivn.; odd petal inside.

CASSIÆ PULPA. *Cassia Fistula*. India, Trop. Africa, W. Indies, Brazil. Sugar, albumin. matter, no peculiar prin.

COPAIBA. *Copaifera Langsdorffii*. Amazon Valley.

Copaivic acid, and other resins.

SENNA. *Cassia acutifolia* (C. lanceolata), from Nubia, &c., via Alexandria. *Cassia angustifolia* (C. elongata), from S. India. (Leaves.)

**TAMARINDUS.** *Tamarindus indica*.  
W. Indies. Citric, tartaric, acetic acids, glucose.

Sub-ord. 3. **MIMOSEÆ.**

*Petals equal, valvate aestivn.*

**ACACIÆ GUMMI.** *Acacia Senegal* (A. Verek), and other spec. of A. N. Africa. Arabin.

**CATECHU.** *Acacia Catechu*. Pegu. Catechutannic acid.

Indigo (Test Solns., B.P.) is from var. spec. of *Indigofera*.  
*Acacia Suma*, Codex  $\pi$ .

## **ROSACEÆ** (rose ord.).

*Trees, shrubs, or herbs with alternate leaves. Calyx 4 to 5-lobed, odd lobe posterior. Stamens paucis, distinct; anthers 2-celled, imbr.* *Carpels* 1 or more, distinct (sometimes united); generally superior, occasionally more or less inferior. *Seeds* 1 or few, exalbum.; *embryo* straight.

### **Sub-ord. POMÆ.**

Simple or compd. *leaves*, free stipules. *Carpels* 1 to 5 adherent to *calyx*, and so becoming inferior; *styles* terminal. Fruit a pome, 1 to 5-celled, or rarely spuriously 10-celled. *Seeds* ascending.

**CUSO** (BRAYERA). *Hagenia abyssinica* (Brayera anthelmintica) (flowers). Abyssinia. Kōsin (Koussin), also tannin, &c.

**CYDONIUM.** *Cydonia vulgaris* (quince, seed). Temp. Europe, N. America. Mucilage.

**QUILLAIA.** *Quillaia Saponaria* (soap bark). Chili. Saponin.

**ROSÆ CANINÆ FRUCTUS** (not U.S.P.). *Rosa canina* (dog rose), and other allied spec. Britain. Crys. sugar, gum; citric and malic acids.

**ROSE CENTIFOLIÆ PETALA.** **Rosa** centifolia. Britain, U. States, &c.; cult. Vol. oil, gallo-tannic acid, fat, sugar, &c.

**ROSE GALLICÆ PETALA.** **Rosa** gallica (red rose). Britain, U. States, &c.; cult. Comp. similar to *Rosa centifolia*.

**RUBUS.** **Rubus villosus**, **R. canadensis**, **R. trivialis** (blackberry, root bark). Canada, U. States. Tannin.

**RUBUS IDÆUS.** **Rubus Idæus** (raspberry, fruit). Canada, U. States, &c. Color. and flav. matters.

#### Sub-ord. Amygdalææ.

Simple *leaves*, free *stipules*, *calyx* decid. *Carpel* solitary, not adherent to calyx; *style* terminal. *Fruit* a drupe; *seed* suspended.

**AMYGDALA AMARA.** **Prunus Amygdalus** (*Amygdalus communis*), var. *amara*. Mogodore. Fix. oil, emulsin, and amygdalin.

**AMYGDALA DULCIS**, from same spec., var. *dulcis*. Malaga. Cont. fix. oil, emulsin, no amygdalin.

**PRUNUM.** **Prunus domestica** (fruit). S. Europe. Malic acid, sacchar. and albumin. matters.

**PRUNUM VIRGINIANA.** **Prunus serotina** (*Cerasus ser.*). (Bark.) U. States. Comp. very similar to Amygd. *Amara*.

**LAUROCERASI FOLIA** (not U.S.P.). **Prunus Laurocerasus**. Britain, &c. Comp. similar to Amygd. *Amara*.

Potentilla Tormentilla, G.P. *Acacia Catechu* Codex \*.



## (b) Epigynæ.

**CUCURBITACEÆ** (gourd or cucumber ord.).

*Herbs*, usually succulent. *Leaves* rough, alternate, radiate veined. *Fls.* unisexual. *Ovary* 5-toothed or obsol., superior. *Corolla* monopet. perigynous. *Sterile fls.*: usually 5 *stam.*, which are distinct, monadelph. or triadelph., or epipet.; rarely 2 or 3 *stam.*; *anthers* long and usually sinuous. *Fertile fls.*: *ovary* inferior, pariet. placent.; *style* short, *stigmas* dilated. *Fruit* succulent. *Seeds* flat, exalbumins, cotyledons leafy.

Characters.—Acrid, bitter, purg. properties.

**COLOCYNTHIDIS PULPA. Citrullus Colocynthis** (fruit pulp). Smyrna, Trieste, France, Spain. Colocynthin.

**ECBALII FRUCTUS. Ecballium Elaterium.** Britain, Malta. Elaterin (neut. subst.).

**BRYONIA.** Bryonia alba, B. dioica (root). C. and S. Europe, N. America. Bryonin (bitt. prin.).

**Pepo. Cucurbita Pepo** (seed). Asia and America. Act. prin. prob. a resin.

**CACTACEÆ. Opuntia cochinillifera** (host of COCCUS).

**MYRTACEÆ.**

*Trees* or *shrubs*. *Leaves* oppos. or altern., entire exstipul., usually dotted, and having a vein just within margin. *Ovary* super., 4 or 5 cleft, valvate, sometimes like cap. *Petals* 4-5, imbricate, rarely absent. *Stamens* 8-10, or numerous, or rarely 4-5; *filaments* distinct or polyadelph. *Ovary* inferior, 1 to 6-celled; *style* and *stigma* simple; *placentas* axile or parietal (rarely). *Fruit* dry or succul., dehis. or indehis. *Seeds* exalbumins, usually numerous.

Characters.—Aromatic and pungent vol. oils; some astringent, others saccharine.

**CARYOPHYLLUM** (-us). *Eugenia caryophyllata* (C. aromaticus) (flower buds; cloves). E. Indies. Vol. oil.

**EUCALYPTUS** (OIL, OF). *Eucalyptus globulus*. Australia. Eucalyptol (vol. oil).

**GRANATI RADICIS CORTEX**. *Punica Granatum*. S. Europe. *Pelletierine*, *isopelletierine* (liqds.), &c.

**PIMENTA**. *Pimenta officinalis* (*Eugenia* P.). (Fruit). W. Indies. Vol. oil.

**OLEUM CAJAPUTI**. *Melaleuca minor* (M. Cajaputi, U.S.P.).

**OLEUM MYRCIÆ**. *Myrcia acris* (oil of bay). **CORNACEÆ** (cornel or dogwood ord.).

**CORNUS**. *Cornus florida*. (Root-bark.) N. America. Cornin (neut. bitt.).

## **HAMAMELIDACEÆ.**

**HAMAMELIS**. *Hamamelis virginica* (witch hazel, lvs.). N. America. Tannin, and a bitt. prin.

## **UMBELLIFERÆ.**

*Herbs or shrubs. Leaves altern., usually compd. and amplexicaul., sometimes simple, always exstipul. Fls. umbell. Calyx sup. Pet. and stam. 5 inserted on fleshy disc above ovary. Ovary infer. 2-celled, one pendul. ovule in each cell; styles 2. Fruit of 2 indehis. carpels separating from carpophore.*

### **(2) *Orthospermæ.***

**ANETHI FRUCTUS** (not U.S.P.). *Peucedanum graveolens* (*Anethum* g.). England, Mid. and S. Europe. Vol. oil.

**ANISI FRUCTUS.** *Pimpinella Anisum*. Russia, Malta, Spain, Germany. Vol. oil.

**AMMONIACUM.** *Dorema Ammoniacum*. Persia, Punjaub. Vol. oil, resin, gum.

**ASAFÆTIDA.** *Ferula Narthex* (N. Asafoetida), *F. Scorodosma*, and other spec. Punjaub, Afghanistan. Vol. oil, resin, gum.

**CARUI FRUCTUS.** *Carum Carui* (C. Carvi, U.S.P.). Britain, Germany. Vol. oil.

**CORIANDRI FRUCTUS.** *Coriandrum sativum*. Britain (Essex). Vol. and fix. oils.

(3) *Cætospermeæ*.

**FENICULI FRUCTUS.** *Foeniculum capillaceum* (F. vulg., U.S.P.). Malta. Vol. oil.

**GALBANUM.** *Ferula galbaniflua*, F. rubricaulis, and other spec. India and Levant. Vol. oil, resin, gum.

(1) *Campylospermeæ*.

**SUMBUL RADIX.** *Ferula Sumbul*. Russia, India. Vol. oil, resin.

**CONII FOLIA.** *Conium maculatum* (hemlock). Europe, N. America. *Coniine, methylconiine*.

*Enanthe Phellandrium* (water-fennel), G.P. *Archangelica officinalis*, G.P. *Levisticum officinale* (lovage), G.P. *Pimpinella Saxifraga* (burnet saxifrage) and *P. magna* (great saxifrage), G.P. *Cuminum* (cuminum, Codex 4.

## DICOTYLEDONES. COROLLIFLORA.

## (a) Epigynæ.

**CAPRIFOLIACEÆ** (honeysuckle ord.).

*Shrubs or herbs with oppos. exstipul. leaves. Calyx super., 4-5 cleft, persistent. Corolla monopet.; and bearing as many stam., as it has lobes (alternate); reg. or irreg. ovary infer., 1-5 celled. Fruit indehis. Seeds fleshy albumen.*

**SAMBUCI FLORES** (not U.S.P.). **Sambucus nigra** (elder). Britain.

**SAMBUCUS. Sambucus canadensis** (flwrs.). N. America. Both very similar, and cont. a light vol. oil.

**VIBURNUM. Viburnum prunifolium** (black haw, bark). N. America. Valerianic acid, resin, tannin.

**RUBIACEÆ** or **CINCHONACEÆ**  
(madder or cinchona ord.).

*Trees, shrubs, or herbs with oppos. simp. entire leaves, interpetiolar stipules and rounded stems; or with whorled exstipul. leaves and angular stems (Gabiaceæ formerly).*

(1) *Cinchona*.

**CINCHONÆ CORTEX. Cinchona Calisaya, C. officinalis, C. succirubra, C. lancifolia, and other spec. contg. the alkaloids (contg. 2-3% U.S.P.).** Nat. of Andes Valley, but now grown in India, Jamaica, Australia, Java, &c.

**CINCHONA FLAVA** is trunk-bark of *C. Calisaya. CINCHONÆ RUBRÆ CORTEX is stem- and branch-bark of *C. succirubra.* For *Cinchona* Alkds., v. p. 448.*

(2) *Coffee*.

**IPECACUANHA.** **Cephaëlis Ipecacuanha** (root). Brazil. *Emetic*, ipecacuanhic acid.

**CAFFEINA** is contained in seeds of **Coffea arabica** (&c.).

**CATECHU** (not U.S.P.). **Uncaria Gambier** (Ext. of). Eastn. Archipelago. Catechin and catechu-tannic acid (related to each other as gallic and tannic acids).

**VALERIANACEÆ.**

**VALERIANÆ RHIZOMA.** **Valeriana officinalis**. Britain, Europe, &c. Vol. oil, valerianic acid.

Dipsacaceæ (teazel ord.), *Scabiosa succisa*, Codex\*.

**COMPOSITÆ.**

*Herbs or shrubs with exstipul. leaves. Flowers. (florists) arranged in dense capitula, commonly surrounded by involucre. (alyx super., lin.b abortive, membrans. or puppos. Corolla monopet., 4-5 toothed, with valvate activation. Stamens epipetalous, equal in number to div. of corolla (and alternate with) (usually 5); anthers syngenesious. Ovary infer., 1-celled, with 1 erect ovule; style simple, bifid. above. Fruit 1-celled, dry, indehiscent. Seed solitary, erect, exalbumus; radicle inferior.*

Characters.—Many cont. tonic bitt. prin., others are laxative and anthelmintic. Many cont. a vol. oil, which is aromatic, carminativ., and diaphoretic.

**ABSINTHIUM.** **Artemisia Absinthium** (wormwood, lvs., tops). U. States; adv. from old world. Vol. oil, absinthin (bitt. prin.).

**ANTHEMIDIS FLORES.** **Anthemis nobilis** (chamomile). England, Europe. Vol. oil.

**ARNICÆ RHIZOMA (RADIX).** A FLORES.  
*Arnica montana.* Mid. and S. Europe, and  
 N.-W. U. States. Arnica, inulin, vol. oil.

**CALENDULA.** *Calendula officinalis* (marigold, herb). U. States. Calendulin, vol. oil, a bitt. prin., &c.

**EUPATORIUM.** *Eupatorium perfoliatum* (lvs., flg. tops). N. America. Vol. oil, eupatorin (bitt.).

**GRINDELIA.** *Grindelia robusta* (lvs., flg. tops). N. America. Resin, vol. oil.

**INULA.** *Inula Helenium* (elecampane, root). Cent. and S. Europe. Helenin (neut. bitt.), vol. oil, inulin, &c.

**LACTUCA (LACTUCARIUM).** *Lactuca virosa* (lettuce, flg. herb). Britain, Europe. Lactucin (bitt.).

**LAPPA.** *Lappa officinalis* (burdock, root). Europe, Asia, U. States. Mucilage, tannin, inulin.

**MATRICARIA.** *Matricaria Chamomilla* (flwrs.). Europe, N. America. Vol. oil, anthemic acid.

**OLEUM ERIGERONTIS.** *Erigon canadense.*  
 N. America. It is a vol. oil.

**PYRETHRI RADIX.** *Anacyclus Pyrethrum* (pellitory). The Levant. Resin, vol. oil, sugar.

**SANTONICA.** *Artemisia maritima*, var. *Stechmanniana* (fl. heads). Russia, Turkestan. Santonin.

**TANACETUM.** *Tanacetum vulgare* (tansy, lvs., tops). N. America, nat. from old world; cult. and wild. Vol. oil.

*Tussilago Farfara* (coltsfoot), G.P. *Cnicus benedictus* (blessed thistle), G.P. *Artemisia vulgaris* (arnoise\*), Codex \*. *Lappa major*, minor, tomentosa (bardane\*), Codex \*. *Antennaria dioica*, *Cichorium lntybus* (chicory), Codex \*.

### **LOBELIACEÆ** (lobelia ord.).

**LOBELIA.** *Lobelia inflata* (lvs., tops). N. America. *Lobeline*.

### (b) Hypostamineæ.

### **ERICACEÆ** (heath ord.).

**GAULTHERIA.** *Gaultheria procumbens* (winter-green) (bark and vol. oil). N. U. States. Vol. oil, arbutin; the oil cont. salicylate of methyl and gaultherilene.

**UVÆ - URSI FOLIA.** *Arctostaphylos Uva-ursi* (bearberry). Britain, Europe, &c. Arbutin.

### **PYROLACEÆ** (winter-green ord.).

**CHIMAPHILA.** *Chimaphila umbellata* (leaves). Northern Continents. Tannin; arbutin, ericolin, &c. (neut. prins.). Ericaceæ, U.S.P.

### (c) Epipetalæ.

### **AQUIFOLIACEÆ** (holly ord.).

**PRINOS.** *Prinos verticillatus* (Ilex verticillata) (black alder, bark). N. America. Tannin, resin, wax, a bitt. prin., &c.

### **SAPOTACEÆ** (sopota or sopodilla ord.).

**GUTTA - PERCHA.** *Dichopsis Gutta* (Isonandra Gutta). Ceylon, Malay Peninsula. Resins. subst. ( $C_{20}H_{32}$ ;  $C_{20}H_{32}O$ ;  $C_{20}H_{32}O_2$ ).

**STYRACEÆ** (storax ord.).

**BENZOINUM.** **Styrax Benzoin.** Siam and Sumatra. Benzoic acid and resins.

**APOCYNACEÆ** (dog-bane ord.).

**APOCYNUM.** **Apocynum cannabinum** (root). U. States. Apocynin, apocynuin. Vinca major and minor, Codex\*.

**LOGANIACEÆ** (spigelia or strychnos ord.).

**IGNATIA.** **Strychnos Ignatii** (St. Ignatius' bean). Philippine Islds. *Strychnine*, *brucine*.

**GELSEMIUM.** **Gelsemium nitidum.** S. U. States. *Gelsamine*.

**NUX VOMICA.** **Strychnos Nux-vomica** (seeds). India. *Strychnine*, *brucine*.

**SPIGELIA.** **Spigelia marylandica** (rhiz., rtls.). U. States. Vol. oil, bitt. prin.

**GENTIANACEÆ.**

**CHIRATA.** **Ophelia Chirata** (herb). N. India. Ophelic acid, chiratin.

**GENTIANÆ RADIX.** **Gentiana lutea.** Cent. and S. Europe. Gentio-picrin, gentianin.

*Erythraea centaurium* (com. centaurry), G.P. and Codex\*. *Menyanthes trifoliata* (buckbean), G.P.

**ASCLEPIADACEÆ** (asclepias or milk-weed ord.).

**ASCLEPIAS.** **Asclepias tuberosa** (root). U. States. Tannin, resins, an odor. fatty matter.



HEMIDESMI RADIX (not U.S.P.). *Hemidesmus indicus*. India. Comp. not determined.

*Gonolobus* Condurango, G.P.

### CONVOLVULACEÆ (convolvulus ord.).

JALAPA. *Ipomoea Purga* (Exogonium P.). ('Tubereules.) Mexico. *Convolvulin* and other resins.

SCAMMONIÆ RADIX (SCAMMONIUM). *Convolvulus Scammonia*. Syria, Asia Minor. Resins resemb. those of jalap.

**SOLANACEÆ** (potato ord.), including **ATROPACEÆ**, as sub-ord. *Atropeæ*.

*Herbs*, rarely *shrubs* or *trees*, alternat. *leaves*, colorless, juice. *Fls.* isomerous. *Calyx* and *corolla* 5, rarely 4 div. *Corolla* reg. or slightly irreg.; aestivn. valvte., imbricate or induplicate. *Stam.* equal in number to lobes of corolla; anthers 2-celled, porous or longitud. dehis. *Ovary* superior, usually 2-celled, more cells rarely. *Fruit* dehis. or indehis., 2 or more celled. *Seeds* numerous, albuminous.

#### (1) *Solanææ*.

Aestivn. of *corolla* valvate or induplicate.

CAPSICI FRUCTUS. *Capsicum fastigiatum*. Trop. Africa and America. Capsaicin, and an alk. resemb. *coniine*.

DULCAMARA. *Solanum Dulcamara* (twigs). N. America, nat. from old world. *Solanine*, *dulcamarine*.

*Capsicum* annum (includ. longum), G.P. *Physalis Alkekengi*, Codex \*. *Solanum nigrum*, Codex \*. *Solanum tuberosum* (potato), Codex.

#### (2) *Atropeæ*.

Aestivn. of *corolla* imbricate.

**BELLADONNÆ FOLIA.** *Atropa Belladonna.* Britain, Cent. Europe. *Atropine, hyoscyamine.*

**RADIX** of same cont. *atropine* and *belladonnine*.

**HYOSCYAMI FOLIA.** *Hyoscyamus niger.* Europe, Asia. *Hyoscyamine* (isomeric with *atropine*).

**STRAMONII FOLIA.** *Datura Stramonium* (thorn-apple). Europe, Asia, N. America. *Daturine, hyoscyamine.*

**TABACI FOLIA.** *Nicotiana Tabacum.* America; cult. Nicotine, nicotianin.

### OLEACEÆ (olive ord.).

**MANNA.** *Fraxinus Ornus* (exudtn.). Calabria, Sicily. Mannite, sucrose.

**Boraginaceæ.** *Borago officinalis*, Codex \*. *Symphytum officinale*, Codex \*.

**OLEUM OLIVÆ.** *Olea europæa.* S. Europe. A fix. oil.

### LABIATÆ.

*Herbs* or *shrubs*, oppos. exstip. *leaves.* *Flsrs.* irreg., unsymmetr. *Calyx* persist. *Corolla* bilabiate. *Stamens* usually 4, then commonly didynam., rarely equal; or only 2. *Ovary* deeply 4-lobed, style 1, basilar; *stigma* bifid. *Fruit* 1 to 4 achenia, enclosed by calyx. *Seed* erect, little or no albumin.

**Characters.**—None hurtful. They abound in vol. oil, and are aromatic, carminativ., stimult.; also contain bitt. extractv. matt.; and some are astringent.

**HEDEOMA.** *Hedeoma pulegioides* (lvs., tops). N. America. Vol. oil.

**OLEUM LAVANDULÆ.** **Lavandula vera.** Britain. It is a vol. oil.

**MARRUBIUM.** **Marrubium vulgare** (lvs., tops). Temp. Europe and N. America. Vol. oil and marrubium (bitt. prin.).

**MELISSA.** **Melissa officinalis** (lvs., tops). U. States, nat. from Europe. Vol. oil.

**OLEUM MENTHÆ PIPERITÆ.** **Mentha piperita.** Britain. It is a vol. oil.

**OLEUM MENTHÆ VIRIDIS.** **Mentha viridis** (spear mint). It is a vol. oil.

**ORIGANUM.** **Origanum vulgare** (wild marjorum, herb). U. States, nat. from Europe.

**SALVIA.** **Salvia officinalis** (lvs.). Europe, America; cult. Vol. oil.

**SCUTELLARIA.** **Scutellaria lateriflora** (herb). N. America. Bitt. prin.

**OLEUM ROSMARINI.** **Rosmarinus officinalis.** S. Europe; cult. Vol. oil.

**OLEUM THYMI.** **Thymus vulgaris.** S. Europe; cult. It is a vol. oil.

*Mentha crispata*, G.P. (*Glechoma hederacea*, Codex\*. *Lamium album*, Codex\*. *Thymus Serpyllum* (wild thyme), G.P.; Cod.\*

## **PEDIALACEÆ** (pedalium ord.).

**OLEUM SESAMI.** **Sesamum indicum.** India. A fix. oil.

## **SCROPHULARIACEÆ.**

*Herbs, rarely shrubs. Flsrs. anisomericus. Inflores. axillary. Calyx and corolla 4 or 5 div. Corolla more or less*

regular, actvlin. imbricate. *Stamens* 2 or 4, and then didynam., rarely 5; *anthers* introrse. *Ovary* usually 2-celled, the cells placed anter. and poster.; *style* 1. *Fruit* capsular or baccate. *Seeds* usually numerous, albumins.

**Characters.**—Some poisonous, some bitter, others astringent; some purgative, emetic, diuretic; a few narcotic.

**DIGITALIS FOLIA.** *Digitalis purpurea* (foxglove). Britain, Europe. Digitoxin, digitalin, digitalein, digitonin, digitin.

**LEPTANDRA.** *Leptandra virginica* (Veronica v.). (Rhiz., rrlts.) N. America. *Lepandrin*.

*Verbascum Thapsus*, Codex \*. *Verbascum phleomoides* (Incl. *V. thapsiforme*), G.P.

## DICOTYLEDONES.

MONOCHILAMYDEÆ (or Incompleteæ.)

### POLYGONACEÆ (buckwheat ord.).

**RHEI RADIX.** *Rheum palmatum*, R. officinale, and other spec. China, Thibet. Chrysophanic acid, chrysophane, pharetin, rheo-tannic acid.

**RUMEX.** *Rumex crispus*, and other spec. Europe; cult. (Root.) Chrysophanic acid (syn. rumicine), tannic acid.

*Polygonum bistorta* (bistort), Codex \*. *Rumex obtusifolius* (patience), Codex \*.

**CHENOPODIACEÆ** (goosefoot or spinach ord.).

**CHENOPodium.** *Chenopodium ambrosioides*, var. *anthelminticum* (fruit). N. America. Vol. oil.

### PIPERACEÆ (pepper ord.).

**CUBEBA.** *Piper Cubeba* (*Cubeba officinalis*). (Fruit.) Java. Vol. oil, resin, cubebin.

**MATICÆFOLIA** (Matico). *Piper angustifolium* (*Artanthe elongata*.) Peru. Vol. oil, artanthic acid, tannin, resin.

**PIPER NIGRUM** (Piper). *Piper nigrum* (fruit). E. Indies. Vol. oil, resin, piperin.

### THYMELACEÆ (mezecon ord.).

**MEZEREI CORTEX.** *Daphne Mezereum*, D. *Laureola*. Europe. Soft acrid resin, daphnin.

*Daphne* (indium (spurge flax), Codex \*.

### PHYTOLACCACEÆ.

**PHYTOLACCA BACCA.** *Phytolacca decandra*. N. America. **PHYTOLACCA RADIX** same. Fruit cont. sugar, gum; root cont. resin, tannin.

### LAURACEÆ (laurel ord.).

**CAMPHORA.** *Cinnamomum Camphora* (*Camphora officinarum*). China, Japan. It is a stearoptane.

**CINNAMOMI CORTEX.** *Cinnamomum zeylanicum*. Ceylon. Vol. oil, mannite, mucilage, &c.

**NECTANDRA CORTEX** (not U.S.P.).  
Nectandra Rodiæi. British Guiana. *Red-  
vine*.

**SASSAFRAS RADIX** (not U.S.P.). Sassa-  
fras officinale. N. America.

**SASSAFRAS.** The root bark of same.

**SASSAFRAS MIPULLA.** Pith of same. Mucilage.  
Root cont. vol. oil; root bark also a little tannin.  
*Laurus nobilis* (sweet bay), G.P.

**MYRISTICACEÆ** (nutmeg ord.).

**MYRISTICA.** *Myristica fragrans* (seed  
kernel). Malayan Archipelago. Fix. and vol.  
oil.

**MACIS.** Arillus of seed of same. The same  
vol. oil.

**ULMACEÆ** (elm ord.) (by some includ. in  
Urticaceæ).

**ULMUS.** *Ulmus fulva* (inner bark). N.  
America. Mucilage. Urticaceæ, Ulmeæ, U.S.P.

**CANNABINACEÆ** (hemp ord.).

**CANNABIS AMERICANA.** *Cannabis sativa*  
(tops), grown in U. States. Cannabin.

**CANNABIS INDICA.** Same grown in India.  
Cannabin.

**FIGUS.** *Ficus Carica* (fruit). Smyrna.  
Glucose, gum, &c.

**LUPULUS (HUMULUS).** *Humulus Lupulus*  
(fruit). England (Kent, Surrey, Worcester).  
Lupulite (bitt. subst.), vol. oil, resin.

**MORACEÆ** (mulberry ord.).

**MORI SUCCUS** (not U.S.P.). **Morus nigra**. S. Europe. Col. matt., sugar, malic (?) acid.  
**Urticaceæ**. — *Parietaria officinalis* (wall pellitory), *Codex*.\*.

**EUPHORBIACEÆ** (spurgewort ord.).

**CASCARILLÆ CORTEX**. **Croton Euteria**. Bahama Islds. *Cascarillin* (bitt. subst. act. prin.), resin, gum, &c.

**KAMALA**. **Mallotus philippinensis** (*Rottlera tinctoria*) (fruit hairs). Bahama Islds. Resins, rottlein.

**OLEUM CROTONIS** (O. TIGLI). **Croton Tiglium**. E. Indies. A fix. seed-oil.

**STILLINGIA**. **Stillingia sylvatica** (root). S. U. States. Resin.

*Euphorbium resinifera*, G.P.

**ARISTOLOCHIACEÆ** (birthwort ord.).

**SERPENTARIE RHIZOMA**. **Aristolochia Serpentaria**, *A. reticulata*. U. States. Vol. oil, resin.

**SANTALACEÆ** (sandal-wood ord.).

**OLEUM SANTALI**. **Santalum album**. India. Vol. oil from wood.

**JUGLANDACEÆ** (walnut ord.).

**JUGLANS**. **Juglans cinerea** (inner root-bark). N. America. Nucin, tannin, fix. oil.

*Juglans regia* (walnut), G.P.

**CORYLACEÆ** or **CUPIVIFERÆ** (oak ord.).

**CASTANEA.** *Castanea vesca* (leaves). N. America. Tannin.

**QUERCUS ALBA.** *Quercus alba* (bark). N. America. Quercit-tannic acid, quercin.

**QUERCUS CORTEX** (not U.S.P.). *Quercus Robur*. Britain. Quercit-tannic acid, quercin.

### **SALICACEÆ** (willow ord.).

**SALIX.** *Salix alba* and other spec. (Bark.) Europe, U. States. Tannin, salicin.

## **DICOTYLEDONES.** GYMNOSPERMÆ.

### **CONIFERÆ** (pine ord.).

Resins. *trees* or evergr. *shrubs*, branched continuous *stems*. *Leaves* linear, needle-shaped or lancetl., parall.-veined, fascicled or imbricate. *Flwers.* naked, monice. or diice. *Male flwers.* in decid. amenta. *Stamens* 1, or several (then monodelp.); *anthers* 2, or many celled and openg. longit. *Pist.* in cones; *ovules* naked, 2 or more on upper surface of each carpel. *Fruit* a woody cone, or a galbulus. *Seeds* naked with hard int. gument, albumins.; *embryotons* 2, or many.

Characters.—Oleo-resinous juice.

**LARICIS CORTEX** (not U.S.P.). **Pinus Larix** (*Abies* L.), larch. Europe. A peculiar tannin; larixin.

**OLEUM PINI SYLVESTRIS** (not U. S. P.). *Pinus sylvestris* (Scotch fir). Finland, Russia. A vol. oil from the leaves.

**OLEUM TEREBINTHINÆ.** *Pinus australis* (*P. palustris*), P. Teda, U. States; sometimes *P. Pinaster*, N.-W. France; *P. sylvestris*. A mixture of hydro-carbons ( $C_{10}H_{16}$ ). Vol. oil (of turps) (distinct from turpentine).



**OLEUM JUNIPERI.** *Juniper communis*. Europe, N. Asia, Hindayas. A vol. oil from unripe fruit ( $C_{10}H_{16}$ , and polymers).

**PIX BURGUNDICA.** *Pinus Picea* (P. *Abies* or *A. excelsa*). Norway, Switzerland. An amorph. resin, oil of turp. and isomers, abietic acid.

**PIX CANADENSIS.** *Abies canadensis*. Canada, N. U. States. Vol. oil, resins. It is the exudation.

**PIX LIQUIDA.** *Pinus sylvestris* and other pines. Empyreumatic resins. A product of destructv. distillation.

**RESINA.**—Resinous remainder from distillation of oleo-resin of var. spec. of pine.

**SABIN.E CACUMINA.** *Juniperus Sabina*. Europe, N. America. Vol. oil from herb.

**TEREBINTHINA.** *Pinus australis* and other spec. of pine. Vol. oil, resin. By making cavities in trunk.

**TEREBINTHINA CANADENSIS.** *Pinus balsamea* (*A. balsamea*). Canada, U. States. Vol. oil ( $C_{10}H_{16}$ ), resin. By incision.

**THUS AMERICANUM** (not U.S.P.). S. U. States. Vol. oil, resin. Scraped off trunk of *Pinus australis*.

**THUJA.** *Thuja occidentalis* (tops). N. America. Vol. oil, thujin, resin, tannin.

*Dammara alba*, D. *orientalis*, G.P. *Larix sibirica*, G.P.

## MONOCOTYLEDONES. PETALOIDES.

(a) *Epigynæ*.**ORCHIDACEÆ** (orchis ord.).

**CYPRIPEDIUM.** *Cypripedium pubescens*,  
*C. parviflorum* (rhiz., rrlts.). N. America.  
 Vol. oil, tannin, resins.

**VANILLA.** *Vanilla planifolia* (fruit). E.  
 Mexico. Vanillin, fix. oil, resin, &c.

*Orchis mascula*, *O. militaris*, *O. morco*, *O. ustulata*, *Anacamptis pyramidalis*, *Platanthera bifolia* (salep), G.P.

**ZINGIBERACEÆ** (ginger ord.).

**CARDAMOMI SEMINA.** *Elattaria Cardamomum*. Malabar. Fix. and vol. oil.

*Turneric* (Test Solns. B.P.). *Cureuma longa* (rhiz.). S. Asia. Curcumin.

**ZINGIBER.** *Zingiber officinale* (rhiz.).  
 W. Indies, India, &c. Vol. oil, resin.

*Alpinia officinarum*, G.P.

**Marantaceæ.**—*Maranta arundinaceæ* (W. I. arrowroot), Codex\*. *Cureuma Zedoaria*, G.P.

**IRIDACEÆ** (iris or cornflag ord.).

**CROCUS.** *Crocus sativus* (parts of flwr.).  
 Britain, S. Europe. Crocin, vol. oil.

**IRIS.** *Iris versicolor* (rhiz., rootlts.). N.  
 America. Resin, vol. oil.

*Iris germanica*, *I. pallida*, *I. florentina* (Codex\*) (arrowroot)  
 G.P.

*(b) Hypogynæ.***SMILACEÆ** (sarsaparilla ord.).

**SARSÆ RADIX** (SARSAPARILLA). **Smilax officinalis** (S. medica, and other spec. of S., U.S.P.). Cent. America. Parillin. Smilax China, Codex\*.

**LILLIACEÆ** (lily ord.).

*Leaves* with parall. straight veins, or succulent. *Fls.* regul. *Perianth*. infer., 6-leaved or 6-partite. *Stamens* 6; *anthers* introrse. *Ovary* superior, 3 celled; *style* 1, undivided. *Fruit* indehis. or loculicidal caps. *Seeds* numerous, albumins.

**ALLIUM**. **Allium sativum** (bulb). Europe, &c.; cult. Vol. oil ( $C_3H_5$ )<sub>2</sub>S.

**ALOE BARBADENSIS** (not U.S.P.). **Aloe vulgaris**. Barbadoes and Dutch W. Indies. Barbaloïn, resin, vol. oil.

**ALOE SOCOTRINA** (ALOE). **Aloe Perryi**, and prob. other spec. W. Africa. Aloïn.

**SCILLA**. **Urginea Scilla** (the bulb). Mediterranean coasts. Scillitoxin (syn. scillain). Asparagus officinalis, Ruscus aculeatus, Codex\*.

**MELANTHACEÆ** or **COLCHICACEÆ** (colchicum ord.) (To Liliaceæ by Benth. and Hook.).

**COLCHICI CORMUS** (RADIX). Colchicum autumnale. Britain, &c.

**COLCHICI SEMINA**.—Both cont. *colchicine* and traces of *veratrine*.

**SABADILLA** (yields Veratrina B. and U.S.P.). **Schoenocaulon officinale** (Asagrea officinalis).

nalis). (Seeds.) Mexico. *Veratrine* (act. prin.); *subadilline* and *subatrine* (traces).

**VERATRI VIRIDIS RHIZOMA.** **Veratrum viride.** Canada, U. States. *Jervine*, *pseudojervine*, *cevadine*; *rubijervine* and *veratrine* (traces).

*Veratrum album*, G.P.

### ACORACEÆ (sweet flag ord.).

**CALAMUS.** **Acorus Calamus** (rhiz.). Europe, Asia, N. America. Vol. oil, acorin. Palmaceæ, *Cocos nucifera* (cocoa-nut), G.P.

## MONOCOTYLEDONES. GLUMACEÆ.

### GRAMINACEÆ (grass ord.).

*Leaves* alternat., split sheaths, a ligule at base of lamina. *Flsrs.* in spikelets or locusts, rarely solitary. *Flsrs.* glumaceous; paleæ usually 2 in each flower. *Stamens* few, frequently 3, with capill. filaments and versatile *anthers*. *Ovary* superior; *stigmas* feathery or hairy. *Fruit* a caryopsis. *Seed* with mealy albumen.

**AMYLUM.** **Triticum sativum** (T. vulgare) (wheat); **Lea Mays** (maize); **Oryza sativa** (rice). Starch.

**FARINA TRITICI** (not U.S.P.). Wheat flour. Starch and gluten.

**HORDEUM DECORTICATUM** (not U.S.P.). Hordeum distichon. Barley. Starch, albuminoides.

**MALTUM.**—The same malted.

**MICA PANIS** (not U.S.P.). Crumb of bread.

**SACCHARARUM.** *Saccharum officinarum*. Trop. countries. ( $C_{12}H_{22}O_{11}$ ) (Theriac is the residue from refining).

**TRITICUM.** *Triticum repens* (rhiz.). Europe, N. America. Glucose, triticin. Arundo Donax, Codex\*.

## FLOWERLESS PLANTS.

### ACOTYLEDONES. ACROGENÆ.

#### FILICES (fern ord.).

**FILIX-MAS (ASPIDIUM).** *Aspidium Filix-mas* (rhiz.). Britain, &c. Fix. oil contg. filicine acid, the chief act. prin.

*Adiantum pedatum*, *Scolopendrium officinale*, *Polypodium vulgare*, Codex\*.

#### **LYCOPODIACEÆ** (club-moss ord.).

**LYCOPODIUM.** *Lycopodium clavatum* (sporules). Europe, Asia, N. and S. America.

### ACOTYLEDONES. THALLOPHYTA.

#### **FUNGI** (mushroom ord.).

**CEREVISIÆ FERMENTUM** (not U.S.P.). *Saccharomyces* (*Torula*) *cerevisiæ*.

**ERGOTA.** *Claviceps purpurea* (ergot of rye). Ergotinic (sclerotinic) acid, scleromucin, sclererythrin.

**USTILAGO.** *Ustilago Maydis* (must of maize). Probably similar to ergot.

*Polyporus fomentarius* (surgeon's agaric), G.P.; Codex\*.

**LICHENES** (lichen ord.).

**CETRARIA.** *Cetraria islandica* (Iceland moss). N. Europe. Lichenin, cetraric acid.

**ALGÆ** (sea-weed ord.).

**CHONDRUS.** *Chondrus crispus*, *C. mamillosus* (Irish moss). N. Atlantic coasts, &c. mucilag. matter.

*Laminaria Cloustoni*, G.P. *Gigartina Helminthocorton*, and others.

**NOTE.** The specific names of plants do not begin with a capital letter, except when the specific name is derived from a generic name as *Rhamnus Frangula*, from a person as *Stychnos Iguatii*, or is indeclinable as *Erythroxylon Coca*.

## A GLOSSARY OF THE MORE IMPORTANT GENERAL TERMS USED IN BOTANY.

(More especially in connection with the higher plants.).

- Abruptly-pinnate*, pinnate leaf terminating in pair of leaflets.  
*Acaulescent*, with very short (apparently no) stem.  
*Acrescent*, growing larger after flowering.  
*Accephalous*, when style is lateral, not surmounting ovary.  
*Acerose*, shaped like needles.  
*Acetabuliform*, cup-shaped.  
*Achanium*, indehiscent monospermous with free seed (fruit).  
*Achlamydeous*, with no flower envelopes.  
*Acicular*, shaped like needles.  
*Actinaciform*, shaped like scumiliar.  
*Acotyledonous*, without cotyledons.  
*Acerocarpons*, with terminal fructification.  
*Acrogen*, growing at summit (ferns).  
*Aerogenous*, attached to ends of threads (fungi).  
*Aerospores*, leaves of corn first appearing.  
*Actinenchyma*, stellate cellular tissue.  
*Aculeate*, bearing prickles.  
*Acuminate*, pointed.  
*Adesmy*, abnormal splitting of organ.  
*Adnate*, adhering by the whole surface.  
*Adpressed*, closely applied but non-adherent.  
*Adventitious*, unusually placed.  
*Adverse*, opposite.  
*Aërophyles*, plants growing entirely in air.  
*Æstivation*, mode of folding (flower-buds).  
*Ala*, lateral wing of papilionate flower.  
*Alate-pinnate*, pinnate with winged petiole.

*Albumen*, the substance surrounding embryo in seeds.

*Albuminous*, having albumen.

*Albuminum*, sap-wood of tree.

*Alliaceæ*, resembling the garlic family.

*Alveolate*, honey-combed.

*Amentum*, a deciduous form of catkin or spike.

*Amphicarpous*, having two forms of fruit.

*Amphisarca*, a compd., multicellr. frt. with hard shell.

*Amphitropal*, curved till ends meet (embryo).

*Amplexicaul*, embracing a stem.

*Amphallaceous*, flask- or bladder-like.

*Analogous*, of similar form (not function).

*Anantherum*, filaments with no anthers.

*Anastomose*, veins communicating by branches.

*Anatropal*, ovate with foramen turned to hilum.

*Andraceum*, male parts of flower.

*Androgynous*, possessing male and female inflorescence.

*Androphorum*, filaments forming tube around pistil.

*Angiocarpous*, having fruit with envelope.

*Anispermous*, possessing an ovary around seeds.

*Anisostameneous*, with stamens and pistils unequal in number.

*Anthor*, the pollen-cases of flowers.

*Anthridia*, male organs in cryptogams.

*Anthrozoid*, syn. *spermatozoid*.

*Anthocarpous*, having fruit formed from a number of flowers.

*Anthodium*, the flowering head of Compositæ.

*Anthotaxis*, flower arrangement of an inflorescence.

*Apetalous*, devoid of petals.

*Aphyll*, suppression of leaves.

*Apiculus*, a short point.

*Apillary*, without upper lip (flower).

*Apocarpous*, with carpels separate.

*Apophysate*, having swelling at base.

*Apostasis*, separation of whorls by abnormally long internodes.

*Appendages*, superadded parts.

*Applanate*, flattened horizontally.

*Apposite*, side by side.

*Apterous*, without wings.

*Archeoponium*, a form of spore-case in cryptogams.

*Arcuate*, bow-shaped.

*Arenate-arcuate*, divided into spaces by curves.

*Arillus* (Arid), an extension of placenta covering seed.



- Arillode*, a false arillus.
- Arista*, the beard of corn.
- Asci*, spore-cases.
- Ascidium*, a pitcher-shaped modified leaf.
- Astomous*, without aperture.
- Atropal*, with erect ovule.
- Attenuate*, tapering to a point.
- Auriculate*, possessing two lobes or ears.
- Autonomous*, complete or perfect in itself.
- Awn*, syn. *arista*.
- Axil*, the angle between axis and any offshoot from it.
- Axillary*, growing in an axil.
- Azis*, the main stem or root.
- Bacca*, a berry, a pulpy indehisc. frt. from an infer. ovary.
- Lacilli*, narrow rod-like Alge.
- Balausta*, fruit of pomegranate.
- Barbs*, double-hooked hairs.
- Barren*, producing no flowers.
- Bi-*, signifying double, thus; Bi-cornute, with two horns.
- Blastema*, axis of embryo.
- Bothrenchyma*, pitted or dotted tissue.
- Brachiate*, with branches opposite at right angles.
- Bracteate*, having bracts.
- Bracteoles*, secondary bracts between bracts and flowers.
- Bracts*, modified leaves at base of flower-stalk.
- Bristles*, sharp stiff hairs.
- Bulb*, a modified leaf-bud with fleshy scales.
- Bulbils*, small axillary buds.
- Bullate*, puckered.
- Bursiculate*, resembling a purse.
- Bysseous*, composed of entangled threads.
- Bysoid*, resembling fine matted threads.
- Cespitose*, tufted.
- Calcarate*, spurred.
- Calceolate*, in form resembling slipper.
- Calycanthemy*, conversion of sepals into petals.
- Calycifloral*, having pet. and stam. inserted in calyx.
- Calyculus*, an involucre having only a few flowers.
- Calyx*, the outside whorl of floral leaves.
- Cambium*, an active vital layer between bark and wood.
- Campanulate*, bell-shaped.

- Campylotropal*, having portions beyond curve of equal length (ovules).
- Campylispermous*, having albumen forming a longil. furrow (seed).
- Canniculate*, channelled.
- Cancellate*, like lattice-work.
- Capitate*, with globose head.
- Capitulum*, the inflorescence of composite flowers.
- Caprification*, fertilization by insects.
- Capsule*, a dry dehiscent fruit.
- Carina*, a keel-shaped arrangement of petals.
- Caricula*, a dry dehis. frt. with carpels round an axis.
- Carinosis*, a super., one-celled, one-seeded, indehis. frt. with dry pericarp united to seed.
- Carpel*, a modified leaf (in pistil).
- Carpophore*, a beak-like prolongation of thalamus, bearing ovary.
- Carcuncula*, a protuberance round hilum (seed).
- Cassiteous*, with helmet-shaped petal, sepal.
- Caulin*, a decid. spike of unisex. flowers.
- Caudate*, having a hairy style (fruit).
- Cauler*, the axis.
- Caudicle*, process uniting pollen-masses to stigma.
- Caudescent*, growing up to form stem.
- Caulis*, the stem.
- Cell**, an elementary vesicle.
- Centrifugal*, flowering commencing at summit (Infloresc.).
- Centripetal*, flowering commencing at base (infloresc.).
- Chalaza*, point of union of coats with nucleus (ovule).
- Chlorophyll*, green coloring matter of plants.
- Chorisis*, multiplication by splitting.
- Cicatrix*, -ice, a scar.
- Cicinnus*, a scorpion cyme.
- Cilia*, a marginal hair.
- Cinechyma*, lactiferous tissue of plants.
- Circinate*, curled like young fern fronds.
- Cirrhus*, a tendril.
- Clathrate*, latticed.
- Clavate*, club-shaped.
- Claw*, lengthened base of some petals.
- Cloves*, bulbs formed within parent bulbs.
- Clypeate*, buckler-shaped.
- Coccyetate*, closely pressed together.

- Coccydes*, pill-like protruberances.  
*Ovulus*, a carpel deliſcing with elasticity.  
*Ovule*, with one piece covering others (aſtivatn.).  
*Ovuliferum*, having albumen curved baſe towards apex (ſeed).  
*Ovularium*, receptacle of capitulum.  
*Cohesion*, attachment by margin.  
*Colerhiza*, ſheath at baſe of embryo of endogen.  
*Collateral*, ſide by ſide.  
*Collenchyma*, parenchyma thickened in angles of cells.  
*Collum*, point of union of root and ſtem.  
*Columnella*, axis around which carpels cohere.  
*Coma*, hair-tufts confined to parts of teſta (ſeeds).  
*Comose*, having hairs at ſummit.  
*Complanate*, flattened.  
*Complicate*, folded upon itſelf.  
*Conduplicate*, folded face to face in vernation.  
*Cone*, ſcaly fruit of Coniferae.  
*Conſluent* (fruits), formed of united carpels, ovaries, bracts, &c., of ſeveral flowers.  
*Conidia*, reproductive cells produced aſexually (Bentley).  
*Connate*, when two uſually diſtinct become joined.  
*Connective*, part intervening between anther-lobes.  
*Connivent*, having points turned inwards.  
*Contorted*, twisted (aſtivation).  
*Convolute*, rolled up.  
*Cordate*, heart-shaped (leaves).  
*Coriaceous*, leather-like.  
*Corn*, bulb-like baſe of ſtem (in monocotyl.).  
*Cornute*, horn-shaped.  
*Corolla*, the inner whorl of floral envelope.  
*Corollifloral*, having pet. ſtam. inſerted in corolla tube.  
*Corona*, a cup-like or rayed proceſs between ſtam. and corolla.  
*Cortex*, the bark, outer layer.  
*Corticolous*, growing in cortex.  
*Corymb*, a raceme with flowers elevated to one level.  
*Costa*, the midrib.  
*Costate*, with one rib (leaves).  
*Cotyledons*, rudimentary leaves of embryo.  
*Crenocarp*, a fruit of 2 carpels face to face upon a common axis from which they hang when ripe.  
*Crenate*, with convex teeth (leaves).  
*Crenulate*, dimid. of crenate.

*Crispate*, curled.

*Cruciate*, cross-shaped.

*Crustaceous*, hard and brittle, resembling hoar-frost.

*Cryptogamia*, having no true flowers.

*Culm*, the stem in grasses.

*Cuneate*, shaped like a wedge.

*Cupule*, an acorn-cup.

*Cuspidate*, tapering to a stiff point.

*Cuticle*, the outer layer of epidermis.

*Cycle*, the turn of a spiral in leaf orders.

*Cyme*, a centripetal form of inflorescence.

*Cynarrhodium*, -on, the hip of roses.

*Cypselæ*, a one-seeded, dry, indehis. fruit.

*Cystocarp*, a spore-case of seaweeds.

*Cystoblast*, syn. protoplasm.

*Cytogenesis*, cell-development.

*Decandrous*, having ten stamens.

*Deciduous*, shedding leaves annually.

*Declinate*, bent downwards.

*Decomound*, with compound divisions.

*Decumbent*, lying on ground but rising at extremities.

*Decurrent*, prolonged down the stem (leaves).

*Decussate*, in pairs crossing alternately.

*Definite*, constant, not exceeding twenty (stamens).

*Deserel*, bent downwards throughout length.

*Defoliation*, falling of leaves.

*Degeneration*, deficiency, reversion to lower form.

*Delicescence*, splitting into regular parts.

*Deliquescent*, dissolving, dividing into irreg. branches.

*Deltoid*, triangular.

*Dendritic*, branched like a tree.

*Dentate*, with sharp teeth pointing indefinitely (leaves).

*Denticulate*, having small teeth.

*Berm*, the inner living portion of bark.

*Denudate*, hairy becoming naked.

*Deplanate*, flattened.

*Determinate*, definite.

*Dextrorse*, turning to the right.

*Diadelphous*, having stamens in two bundles.

*Dialysis*, separation of usually united parts.

*Diandrous*, having two stamens.

*Diaphanous*, translucent.

- Diaphysis*, unusual prolongation of inflorescence.  
*Dichlamydeous*, having both corolla and calyx.  
*Dichotomous*, forked.  
*Diclecium*, a small, dry, indehis. pericarp, with pericarp hard and adherent to carpel, and forming part of shell.  
*Declinous*, having stamens and pistil in separate flowers.  
*Dicotyledonous*, with two cotyledons.  
*Didymous*, in pairs.  
*Didynamous*, with four stamens, two long and two short.  
*Digitate*, having several leaflets arising from common point.  
*Dignous*, syncarpous, with two carpels.  
*Dimerous*, having two parts in whorl (flower).  
*Dimorphous*, having two forms of flower.  
*Dioecious*, with male and fem. flowers on separate plants.  
*Dipetalous*, having two petals.  
*Diplostemonous*, with twice as many stamens as petals.  
*Diplolegia*, an infer. capsule dehiscing, by valves or pores.  
*Discoid*, with convex face.  
*Discrete*, separate, distinct.  
*Disk*, any organ between stamens and ovary.  
*Dissepiment*, partitions within a fruit.  
*Distichous*, in two opposite rows.  
*Distractile*, divided in two.  
*Divaricate*, straggling.  
*Dorsifixed*, adnate, with back attached throughout to filament (anther).  
*Dorsal*, fixed upon the back.  
*Drupe*, succulent or fleshy fruit with hard-shelled seed.  
*Drupelet*, dimin. of drupe.  
*Duct*, a tubular vessel in plant.  
*Duramen*, the heart-wood.

*E-* signifies without, devoid of, as :

- Ebracteate*, without bracts.  
*Echinate*, prickly.  
*Elaters*, elastic spiral threads associated with spores, &c.  
*Elongation*, undue lengthening of organs.  
*Embryo*, the rudimentary plant within seed.  
*Emergences*, prickles and some allied structures.  
*Enation*, excessive development.  
*Endocarp*, lining of carpel.  
*Endocarpeoid*, having apothecia sunk.  
*Endogenous*, growing at centre.

- Endoplasm*, the liber, inner layer of barks.  
*Endopleura*, innermost seed-coat.  
*Endosmose*, inward osmosis.  
*Endospore*, inner integument of spores.  
*Endostome*, opening in inner integument of ovule.  
*Endothecium*, lining of anther-tube.  
*Enneandrous*, having nine stamens.  
*Ensiform*, broad-sword-shaped.  
*Entire*, without marginal divisions.  
*Entophytes*, plants growing within others.  
*Epanolys*, reversion of irreg. to regular form (flower).  
*Epicalyx*, a kind of involucre.  
*Epicarp*, outer layer of pericarp.  
*Epidermis*, the true skin.  
*Epigeal*, -*aeous*, growing upon ground.  
*Epigynous*, appearing to rise from apex of ovary.  
*Epipetalous*, inserted on the petals.  
*Epiphloëm*, outer layer of bark.  
*Epiphyllous*, upon a leaf.  
*Epiphytes*, plants growing on, not nourished by, others.  
*Episperm*, the coat of seed.  
*Epispore*, outer integument of spores.  
*Erect*, growing from base of ovary (ovules).  
*Estivation*, *vide* Estivation.  
*Esterio*, fruit formed of agglomerated drupes.  
*Etiolated*, blanched.  
*Ex*, signifies without, as :  
*Exalbuminous*, having no albumen.  
*Exasperate*, covered with stiff points.  
*Excurrent*, central with regular lateral branches (stem).  
*Exocarp*, syn. epicarp.  
*Exogenous*, growing from outside (stems).  
*Exorhizal*, developed by direct elongation of radical (root).  
*Exosmose*, osmosis outwards.  
*Exserted*, projected from orifice.  
*Exstipulate*, without stipules (leaves).  
*Extrine*, outer integument of pollen-grain.  
*Extrorse*, turned outwards.  
*Falcate*, sickle-shaped.  
*Farinaceous*, resembling flour.  
*Fusciated*, flattened.

- Fascicle*, tufts (leaves) inserted at common point.  
*Fusculus*, a cymose, short-stalked flower forming a flat bunch.  
*Fusigiate*, pointing upwards, nearly parallel.  
*Faux*, the throat of a monsep. calyx.  
*Fuuse*, honeycombed.  
*Feathery*, hairs themselves hairy.  
*Fertile*, capable of seed-bearing.  
*Fibrils*, root-hairs.  
*Fibro-vascular*, containing spiral fibres.  
*Fid*, cleft, as bifid.  
*Filament*, the anther-stalk.  
*Filiform*, thread-like.  
*Fimbriated*, fringed.  
*Fissiparous*, propagated by cell-division.  
*Flabelliform*, fan-shaped.  
*Flagelliform*, whip-shaped.  
*Flexuose*, wavy.  
*Flocculose*, woolly.  
*Florets*, the small flowers of Composite.  
*Foliaceous*, leaf-like.  
*Foliation*, leaf formation.  
*Folioses*, leaflets.  
*Follicle*, fruit of one carpel, dehisg. by ventral suture.  
*Foramen*, the aperture in foramen of ovules.  
*Forilla*, fluid in pollen-grains.  
*Frond*, the leaf-like expansion of Ferns, Alga, &c.  
*FronDESCence*, conversion of organs into leaves.  
*Funiculus*, the stalk of an ovule.  
*Furcate*, forked.  
*Fusiform*, spindle-shaped.  
*Galbulus*, a modified cone, rounder and scales enlarged.  
*Galeate*, helmet-shaped.  
*Gamopetalous*, having petals united.  
*Gamosepalous*, having sepals united.  
*Genmation*, budding.  
*Geniculate*, bent at a more or less obtuse angle.  
*Genus*, a group of allied species.  
*Germination*, the first act of growth of embryo.  
*Gibber*, a sac at base of a floral envelope.  
*Gibbous*, having sacs or pouches.  
*Glabrous*, smooth, devoid of hairs.

*Glans*, or Nut, an infer., hard, indehisc., one-celled, one- or two-seeded fruit from a two- or more-celled ovary.

*Globose*, nearly spherical.

*Glochidiate*, barbed in manner of a fishhook.

*Glomerule*, a cymose inflores. of globose form.

*Glume*, scales at base of flowers of grasses.

*Gnomonical*, bent at right angles.

*Grossification*, swelling of ovary after impregnation.

*Grumous*, clotted, in clustered grains.

*Gymnospermous*, having naked ovules.

*Gynandrous*, having stamens and pistils united.

*Gynobasic*, having ovary imbedded in, and style apparently arising from thalamus.

*Gynacium*, the female portion of a flower.

*Gynophore*, the stalk of an ovary.

*Gyrate*, turning in a circular manner.

*Gyrose*, marked with wavy lines.

*Habitat*, the situation of a (wild) plant.

*Hairs*, thread-like appendages of the epidermis.

*Haustorium*, little rounded projections or suckers.

*Helicoid*, twisted like a snail's shell or screw.

*Hemitropal*, a modified anatropal (ovule)

*Hemilandrours*, having seven stamens.

*Herbs*, plants having annual stems.

*Hermaphrodite*, having both stamens and pistil (flowers).

*Hesperidium*, a super., many-celled, indehisc. fruit (orange, &c.).

*Heterodromous*, following different directions.

*Heterophyllous*, having different shapes of leaves on plant.

*Heterorhizal*, having roots developing irregularly.

*Heterostyled*, having two forms of male and female organs.

*Heterotary*, deviation of organs from ordinary posit on.

*Heterotropous*, parallel with hilum (embryo).

*Heteropetalous*, having six petals.

*Hilum*, scar left by separation of seed from placenta, the point of attachment.

*Homocarpous*, having all fruits alike (flower-head).

*Homodromous*, following same direction.

*Homogamous*, having all florets alike (capitulum).

*Homologous*, of the same fundamental nature, as petals and leaves.

*Homotropous*, lying in same direction as seed (embryo).



*Hybrids*, the offspring of two species.

*Hydrophytes*, plants living entirely in water.

*Hymenotric*, sensitive to moisture.

*Hypanthodium*, a fleshy receptacle enclosing flowers.

*Hypocrateriform*, having long narrow tube with limb at right angles (flower).

*Hypogæous*, subterranean.

*Hypogynous*, growing from beneath ovary.

*Hypophyllous*, growing from inside of leaf.

*Imbricate*, overlapped.

*Imparipinnate*, pinnate terminatg. by single leaflet (leaves).

*Inarticulate*, not jointed.

*Incauescent*, of a hoary appearance.

*Included*, shorter than corolla tube (stamens).

*Incrassate*, thickened.

*Incumbent*, having radicle folded on back of cotyledons.

*Incurvate*, curved inwards.

*Indefinite*, more than twenty (stamens).

*Indehiscent*, not splitting when ripe (fruits).

*Induplicate*, having margins folded inwards.

*Indusium*, ring of hairs collecting pollen below stigma.

*Induvium*, remains upon stem of decayed inarticulate leaves.

*Inferior*, growing below another.

*Inflexed*, bent inwards.

*Inflorescence*, the arrangement of flowers upon stem.

*Infra-axillary*, arising below the axil.

*Infrutescences*, anthocarpous fruits.

*Infundibuliform*, funnel-shaped.

*Innate*, adhering to apex.

*Inosculation*, grafting.

*Internode*, the interval between nodes.

*Interpetiolar*, situated in interval between petioles.

*Intine*, inner lining of pollen-grains.

*Introrse*, turned towards axis.

*Inverted*, attached to top of ovary (ovules).

*Involucel*, involucre at base of partial umbels.

*Involucere*, a whorl of bracts surrounding flowers.

*Involute*, rolled inwards.

*Irrregular*, having unequal petals.

*Isostemonous*, having stamens and petals equal in number.

*Jointed*, having, or appearing to have joints.

*Jugate*, paired, as an jugate.

*Keel*, vide *Carina*.

*Knobs*, woody embryo buds on stems.

*Knots*, broken ends of branches enveloped in woody growth.

*Labellum*, the lower petal of orchid.

*Labiate*, corolla (monopet.) with two unequal divisions.

*Labium*, lower lip of labiate flower.

*Laciniate*, fringed.

*Laciniolate*, dim of *Laciniate*.

*Lacinula*, the inflexed point of petals of Umbellifera.

*Lacuna*, a space between cells.

*Lacunose*, pitted, or containing cavities.

*Lamina*, a leaf-blade; layers.

*Lanceolate*, shaped like a lance-head.

*Lanuginose*, covered with woolly hairs.

*Lateral*, attached to the side.

*Latices*, the fluid in laticiferous vessels.

*Leaflets*, the divisions of compul. leaves.

*Legume*, a dehisce. two valved carpel with seeds on vent. suture.

*Lenticels*, prolongations externally of epiphloëm.

*Lenticinose*, covered with spots appearing dusty.

*Lepidote*, covered with small scurfy scales.

*Leprous*, covered with mealy substance.

*Liber*, inner layer of bark of Exogens.

*Ligula*, strap-shaped florets of Compositæ.

*Ligulate*, strap-like.

*Ligule*, prolonged upper portion of sheath of grasses

*Limb*, the free upper part of a petal.

*Limitate*, bounded by a distinct line.

*Linear*, narrow with parallel sides (leaves).

*Linguiiform*, tongue-shaped.

*Lobate*, divided into lobes.

*Lobe*, a rounded portion.

*Loculament*, cavities on fruits or ovaries.

*Loculi*, cavities in lobes of anthers.

*Loeudicidal*, dehisce by dorsal suture, or through backs of

cells, dissepiments remaining undivided.

*Loeusta*, the partial infloresc. (spikelet) of grasses.

*Lomentum*, legume contracted between each seed.

*Lophiostomate*, having crested apertures.

*Lubricous*, smooth, slippery.

*Lunate or lunulate*, crescent shaped

*Lycotropous*, orthotropous curved downwards (ovules).  
*Lyrate*, lyre-shaped; with upper lobes largest.

*Macropodous*, having radicle longer than cotyledons.

*Macro* signifies large; as macrophylline, having large or elongated leaflets.

*Male*, bearing stamens only.

*Mamilla*, granular prominences on pollen-grains.

*Mamillated*, shaped like the mamma.

*Maniccate*, covered with tangled hairs.

*Marcescent*, persistent and of withered appearance.

*Marginate*, having a distinctly textured border.

*Masked*, labiate, but with lip closed (flowers).

*Mastoid*, teat-like.

*Medulla*, the pith of Exogens.

*Medullary rays*, plates of tissue passing from pith to bark.

*Meiophyllly*, suppression of leaves in a whorl.

*Meiostemonous*, stamens less in number than petals.

*Meiotary*, suppression of a set of organs.

*Melanophyll*, brown pigment in seaweeds, &c.

*Meniscoid*, shaped like watch-glass.

*Mericaip*, the component carpels of fruits of Umbellifera.

*Merismatic*, dividing: by formation of internal septum.

*Meristem*, paren-hyma capable of dividing merismatically.

*Meros*, a part, as: isomeros, having equal parts.

*Mesocarp*, middle layer of pericarp.

*Mesophloem*, middle layer of bark.

*Mesophyll*, the parenchyma within epidermis of leaves.

*Metamorphosis*, change of one organ into another.

*Metastasis*, passage of assimilated matter from originating cells to other parts.

*Microspores*, small reproductive spores in pepperworts, &c.  
*Microphyle*, aperture in skin of seeds which was for amen of ovule.

*Midrib*, the large central vein of leaves.

*Monadelphous*, having filaments united into tube.

*Monandrous*, having one stamen.

*Moniliform*, necklace-shaped.

*Monocarpous*, fruiting once in life.

*Monochasial*, unilateral, uniparous.

*Monochlamydeous*, having one floral envelope.

*Monocotyledonous*, having one cotyledon.

*Monodelphous*, vide Monadelphous.

*Monocious*, having male and female flowers on same plant.

*Monogynous*, having one carpel, style, or stigma.

*Monopetalous*, having petals united.

*Monophyllous*, having one leaf.

*Monopodial*, growing by a terminal bud (axis).

*Monospalous*, having sepals united.

*Monosis*, isolation of an organ.

*Monospermous*, one-seeded.

*Monostichous*, in one row.

*Morphosis*, mode of development.

*Monstrosity*, deviation from ordinary structure.

*Mucedinous*, mould-like.

*Mucronate*, with sharp spine at apex.

*Multifid*, many-cleft.

*Multifoliate*, having more than seven leaflets.

*Multijugate*, having many pairs of leaflets.

*Multilocular*, having many cells (ovary).

*Multiovulate*, having many ovules.

*Multiseptate*, having many septa.

*Multispermous*, many-seeded.

*Multivalvate*, many-valved.

*Muricate*, rough, with hard tubercles.

*Muriform*, resembling courses of bricks.

*Muticous*, destitute of a slender point.

*Napiform*, turnip-shaped.

*Navicular*, boat-shaped.

*Nectar*, fluid secreted by nectariferous glands.

*Nephroideous*, kidney-shaped.

*Nervation*, arrangement of leaf-veins.

*Nervate*, nerved, having veins.

*Nidulant*, nestling.

*Node*, point where leaf develops.

*Nodulose*, necklace-shaped.

*Nucleate*, having a nucleus.

*Nuculanium*, fruit similar to berry but superior.

*Nut*, syn. Glans.

*Obo cordate*, inversely cordate, apex broad (leaf).

*Oblique*, unequal-sided.

*Obovate*, inversely egg-shaped, apex broad (leaf).

*Obsolete*, suppressed.

*Obtuse*, blunt, rounded.

*Cebulate*, with opposite margins alternately overlapping.  
*Ocrea*, a membranous stipule sheathing stem.

*Octandrous*, having eight stamens.

*Octastichous*, forming spiral in eight (leaves round stem).

*Octofarious*, in eight directions.

*Octo*, eight, as: octosporous, having eight spores.

*Offset*, a short thick runner bearing tufts of leaves at extremity.

*Oligandrous*, having less than twenty stamens.

*Omphalodium*, centre of hilum.

*Oogonium*, an ovarian sac contg. oospores.

*Opheoridium*, spore cases of Lycopodiaceæ.

*Opercule*, when faces of anther open like trap-doors.

*Opposite*, arranged in pairs against each other.

*Orbicular*, circular.

*Orthotropeal*, erect, foramen opposite hilum (nucleus).

*Ovary*, lower portion of pistil contg. ovules.

*Ovate*, egg-shaped.

*Ovule*, the young seed, or seed-bud.

*Palate*, projection of lower lip of masked corolla closing throat.

*Paleæ* or pales, chaffy inner scales of flowers of grasses.

*Palmate*, having five lobes, veins from common centre.

*Palmatifid*, palmately cleft.

*Panduriform*, fiddle-shaped.

*Panicle*, a branched raceme.

*Papilionaceous*, resembling a butterfly; like the pea-flower.

*Papillæ*, 1-celled secreting glands upon epidermis.

*Pappus*, the coronate calyx of Composite.

*Pappose*, having a pappus.

*Parasitic*, growing upon and nourished by another plant.

*Parenchyma*, soft tissue consistg of thin-walled cells.

*Parietal*, attached to walls of ovary (placentas); by cell-division (growth).

*Paripinnate*, equally pinnate.

*Partite*, divided nearly to base.

*Patent*, spreading.

*Patulous*, divergent, spreading outwards.

*Pectinate*, resembling a comb.

*Pedate*, palmate with lateral portions again subdivided.

*Pedatifid*, pedate, but lobe extending only half-way to midrib.

- Pedatipartite*, pedate, with lobes nearly free.  
*Pedatisected*, pedate lobes extending nearly to midrib.  
*Pedicel*, a secondary peduncle.  
*Peduncle*, a flower-stalk.  
*Peloria*, a five-spurred flower.  
*Peltate*, attached at or about the centre.  
*Pendulous*, hanging down.  
*Penicellate*, fringed or tipped with pencil-like hairs.  
*Pentandrous*, having five stamens.  
*Pentapterous*, having five wings.  
*Pentastichous*, forming spiral in five (leaves round stem).  
*Pepo*, an infer., one-celled, many seeded, fleshy or pulpy fruit.  
*Percurrent*, extending throughout entire length.  
*Perennial*, lasting several years and flowering annually.  
*Perfect*, containing seeds, fertilized (fruits).  
*Perfoliate*, amplexicaul. with basal lobes united (leaves).  
*Perianth*, the calyx and corolla combined (and both petaloid).  
*Periblem*, the intermediate layer of radicle.  
*Pericarp*, the covering or shell of fruits.  
*Pericladium*, sheathing membrs. stipules of Umbellifera.  
*Periclinium*, the involucre of Compositae.  
*Periderm*, the corky layer of bark; the dead portion of bark.  
*Perigynous*, adhering to calyx and lateral to pistil.  
*Periphery*, outer cell-stratum of cylindrl. fronds.  
*Perisperm*, the albumen.  
*Perispore*, the membrane surrounding a spore.  
*Peritropal*, axis perpendic. to axis of pericarp (seed).  
*Personate*, masked; resembling a mouth.  
*Petaloid*, resembling petals.  
*Petals*, the corolla leaves.  
*Petiole*, stalk of a leaf.  
*Petiolule*, stalk of a leaflet.  
*Phænogamous*, or planicogamous, producing flowers.  
*Phelloderma*, syn. mesophloëm, green layer.  
*Phellogen*, a layer between epi- and mesophloëm.  
*Phoranthium*, the receptacle.  
*Phragma* (plu. Phragmata), horizontal false dissepiments.  
*Phycocyan*, blue pigment in seaweeds.  
*Phycocrythrin*, red pigment in seaweeds.  
*Phyllodes* (-odia), leaf-like petioles.  
*Phyllome*, syn. leaf.  
*Phyllotaxis*, leaf-order on stem.  
*Phyton*, a rudimentary plant; a bud.

*Pileorkhiza*, the root-cap.

*Pilose*, hairy.

*Pinnæ*, leaflets of pinnate leaves.

*Pinnate*, resembling a feather (div. to midrib), (leaves).

*Pinnatifid*, pinnate, only half-way divided to midrib.

*Pinnatifarctate*, pinnate lobes almost free.

*Pinnatisect*, pinnate div. nearly to midrib.

*Pinnulæ*, the secondary divisions of pinnate leaves.

*Pistil*, the female organ of flowering plants.

*Placenta*, internal projections of ovary bearing ovules.

*Plicate*, plaited in fan-like folds.

*Plumule*, rudimentary bud of embryo.

*Pod*, syn. Legume.

*Pollen*, the fertilising powder of anthers.

*Poly*, signifies many, as:

*Polyadelphous*, with stamens in many bundles.

*Polyandrous*, having more than 20 stamens.

*Polycarpous*, with many separate fruits or carpels.

*Polycotyledonous*, with more than two carpels.

*Polygamous*, with male, female, and hermaph. flwrs. on same plant.

*Pome*, an infer., indehisc., two or more celled, few-seeded, fleshy fruit.

*Pomorse*, abrupt, as if bitten off (leaves).

*Primine*, outer coat of ovules.

*Procumbent*, lying flat on ground.

*Proliferous*, with unusual development of parts.

*Prosenchyma*, tissue consistg. of elongated pointed cells.

*Pubescent*, downy.

*Pulvinus*, cushion at base of some leaves.

*Putamen*, hard stone in certain fruits.

*Pyzis*, a capsule dehiscg. transversely.

*Quadrifoliate*, with four leaflets diverg. from point.

*Quadrifugate*, compound with four pairs leaflets.

*Quadrinate*, syn. Quadrifoliate.

*Quincuncial*, two exterior, two interior, one half ext., half inter. (parts in activatn).

*Raceme*, a spike with flowers stalked.

*Rachis*, axis of inflorescence.

*Radical*, springing from root.

*Radicle*, the embryo root.

*Raphe*, nutritive cord between nucleus and placenta.

- Raphides*, inorganic crystals in plant-cells.  
*Receptacle*, a support to organs.  
*Reclinate*, bent downwards.  
*Recurved*, bent backwards.  
*Reduplicate*, valvate arrangement, margins reflexd. (æstivatr.).  
*Regma*, capsule with carpels dehisce. separately and with elasticity.  
*Reniform*, kidney-shaped.  
*Reliquiæ*, syn. *Induvia*.  
*Retrorse*, directed backward.  
*Retuse*, obtuse, with notch in middle (leaves).  
*Revolute*, rolled backward.  
*Rhizome*, prostrate stem, bearing leaves and rootlets.  
*Ringent*, labiate, with wide lips (corolla).  
*Rostr*, the descending axis of plant.  
*Rostrate*, terminating in a beak.  
*Rotate*, with tube short and limb spreading (mon. pet. corolla).  
*Runcinate*, with backward-pointing teeth.  
*Runner*, a slender prostrate stem rooting and budding at nodes.  
*Rupturing*, dehisce. irregularly.  
*Saccate*, *Sacciform*, bag-shaped.  
*Sagittate*, like arrow-head.  
*Samara*, a super., winged, indehis. fruit.  
*Sarcocarp*, a fleshy mesocarp.  
*Sarcoderm*, a portion of outer integument of seeds.  
*Scalariform*, barred or striated.  
*Scales*, metamorphosed or rudimentary leaves.  
*Scape*, a long, naked, radical peduncle.  
*Scarious*, thin, dry, and shrivelled.  
*Schizocarps*, with carpels separ. without opening (fruits).  
*Sclerenchyma*, parenchyma with thickened cells.  
*Scorpioid*, rolled in a circinnate manner.  
*Seclite*, cut into small pieces.  
*Semi-* signifies half.  
*Serrate*, toothed like a saw.  
*Setæ*, bristly stiff hairs.  
*Setaceous*, bristle-shaped.  
*Sheath*, vide *Vagina*.  
*Siliqua*, a broad and short siliqua.  
*Siliqua*, a long pod with two valves dehisce. from below upwards, and leaving a replum.



*Sinuistorse*, twining towards the left.

*Sinuate*, having a wavy margin.

*Soboles*, a slender subterranean rhizome.

*Sorosis*, a collective fleshy fruit from many flowers.

*Spatha*, a succulent spike (within a spathe).

*Spathæ*, a large bract enclosing an inflorescence.

*Spathulate*, spoon-shaped.

*Spermatozoids*, thread-like motile reproductive bodies of cryptogams.

*Spermoderm*, the skin of a seed.

*Sphalerocarpium*, a fruit consisting of a naked seed in a cup.

*Spike*, an inflores. of sessile flowers on elongated axis.

*Spine*, a modified branch (pointed).

*Sporangium*, a spore-case.

*Spores*, reproductive organs of cryptogams.

*Squamous*, scaly.

*Stamens*, male organs of flowers.

*Standard*, the vexillum of papil. corolla.

*Stigma*, portion of carpel to which pollen adheres.

*Stipels*, stipules attached to leaflets.

*Stipellate*, having stipels.

*Stipitate*, stalked.

*Stipe*, petiole of fern.

*Stipules*, leaflike appendages at base of p. tirole.

*Stolon*, a trailing and rooting branch.

*Stoma* (plur. *ata*), breathing ap. rtures in epidermis.

*Strobilus*, a spike of scales bearing pistillt. flowers at their bases.

*Strophioles*, small irreg. protuberances found on testa.

*Style*, the prolongation of ovary bearing stigma.

*Stylopodium*, fleshy disc carrying styles (Umbellif.).

*Sub-* as a prefix signifies almost.

*Suberos*, corky.

*Subulate*, awl-shaped.

*Superior*, placed above and free of.

*Supervolute*, rolled in on itself (vernation).

*Succulus*, a sucker, an upright shoot from subterr. stem.

*Suspended*, attached between apex and base of ovary (ovules).

*Suspensor*, cord suspending embryo from foramen.

*Suture*, a line of junction.

*Syconus*, succulent receptacle enclosing fruits (as in fig).

*Syncarpous*, having carpels cohering.

*Syngenesious*, having anthers united into a tube.  
*Syncreate*, uniting to form a sheath round stem (stipules).

*Tap-root*, a simple conical root with branches.

*Tegmen*, the inner seed-coat.

*Tendrils*, a thread like, leafless, spiral branch.

*Terminal*, proceeding from the end.

*Ternate*, arranged in threes.

*Testa*, the external skin of a seed.

*Tetradynamous*, with six stamens, four long in pairs, one short pair.

*Tetragonal*, having four pts. in the whorls.

*Tetramerous* (flower), with tetragonal symmetry.

*Thalamifloral*, having petals and stamens inserted on thalamus.

*Thalamus*, the receptacle of a flower.

*Thorn*, syn. *Spine*.

*Thyrse* (or *-us*), branched panicle form. pyram. cluster.

*Tomentose*, with short hairs.

*Torus*, syn. Receptacle or Thalamus.

*Tracheæ*, or Tracheenchyma, spiral vessels.

*Tri-signifies* three, as:—

*Trichotomous*, dividing in three.

*Trichomes*, syn. Hairs.

*Tricostate*, three-ribbed.

*Trifoliate*, ternate; of three leaflets.

*Trigonal*, having three parts in the whorl.

*Trigonous*, triangular with convex faces (stems).

*Trilocular*, having three cells in ovary.

*Trimerous* (flower), having trigonal symmetry.

*Tristichous*, arranged in three ranks (leaves).

*Truncate*, terminating abruptly.

*Tryma*, a super-, one-celled, one-seeded, indehis. frt., resembling a drupe, but formed from compl. ovary.

*Tuber*, a swollen portion of underground stem.

*Tubercle*, enlarged oval or rounded protns. of root.

*Umbel*, inflores. with pedicels all proceeding from top of peduncle.

*Umbellule*, a secondary umbel.

*Uncinate*, hooked.

*Unguiculate*, having an unguis.

*Unguis*, the narrow portion (stalk) of a petal.

*Uni-* signifies one, as:

*Unilocular*, having one division (ovary).

*Coeili*, embryo-buds of the olive.

*Utraculate*, monopet, pitcher-shaped (corolla).

*Utricle*, a super, one-celled, few-seeded fruit.

*Vagina*, sheath formed by petiole around sterc.

*Vaginal*, relating to the stipule.

*Valvate*, united only by margins.

*Valves*, portions detaching by definite dehiscence.

*Venation*, arrangement of veins in leaves.

*Verrucose*, covered with warts.

*Versatile*, freely swinging.

*Verticel*, a whorl; *-ate*, having whorls.

*Verticellaster*, a variety of cyme as in *Lamium album*.

*Vertillum*, the erect petal (standard) in papill. corolla.

*Vitta*, canals contg. oil in fruit-coat of *Umbellif*.

*Volute*, rolled up.

*Wart*, a solid glandular excrescence on epidermis.

*Whorl*, a circle of leaves, &c., around a stem.

*Xylocarp*, a hard woody fruit.

*Zones*, concentric bands.

# LIST OF LATIN TERMS AND TECHNICAL PHRASES USED IN WRITING PRESCRIPTIONS, WITH THEIR ABBREVIATIONS.

The parts *omitted* when abbreviated are given in italics.

(Adapted from Remington's Practice of Chemistry.)

*A, āā*, Of each.  
*Abdomen*, The belly.  
*Absente febre*, In absence of fever.  
*Accurate*, Accurately.  
*Ad, To*, up to.  
*Ad duas vices*, At twice taking.  
*Ad secundum vicem*, To the second time.  
*Ad tertiam vicem*, To the third time.  
*Adde, Add.*  
*addatur*, Let them be added.  
*addendus*, To be added.  
*addendo*, By adding.  
*Ad defectionem animi*, To fainting.  
*Ad gratam aciditatem*, To agreeable sourness.  
*Adhibendus*, To be administered.  
*Adjacens*, Adjacent.  
*Ad libitum*, At pleasure.  
*Admove, Apply.*  
*admoveatur*, Let it be applied.  
*admoveantur*, Let them be applied.

*Astante febre*, When fever is on.  
*Adversum*, Against.  
*Aggrediente febre*, While fever is coming on.  
*Agitato vase*, The vial being shaken.  
*Aliquant, Some.*  
*Alter, The other.*  
*Alternis horis*, Every other hour.  
*Altino* (or -a) *præscripta*, The last ordered.  
*Aluta, Leather.*  
*Alvo adstricta*, Bowels being confined.  
*Alvus, The belly.*  
*Amplus, Large.*  
*Ana, Of each.*  
*Ana, Together.*  
*Aqua, Water.*  
*Aqua astricta*, Frozen water.  
*Aqua bulliens*, Boiling water.  
*Aqua communis*, Common water.  
*Aqua servens*, Hot water.  
*Aqua fluvialis*, River water.  
*Aqua fontalis*, Spring water.

*Aqua marina*, Sea water.  
*Aqua nivialis*, Snow water.  
*Aqua pluvialis*, Rain water.  
 Aut, Or.  
*Balneum Arenæ*, Sand bath.  
*Balneum Mariæ*, or *Maris*,  
   Salt-water bath.  
*Balneum Vaporosum*, or *Va-*  
*poris*, Vapour bath.  
*Balsamum*, Balsam.  
*Barbaldensis* (*B.B.*, *B.B.S.*),  
   Rhubarbes.  
 Bene, Well.  
 Bibe, Drink.  
 Biduum, Two days.  
 Bis, Twice.  
*Bis in die*, Twice a day.  
*Bis indies*, Twice a day.  
*Bolus*, A large pill.  
*Bulliat*, *bulliant*, Let boil.  
*Butyrum*, Butter.  
*Caruleus*, Blue.  
*Calefactus*, Warmed.  
*Calomel*, Mild chlord. of  
   mercury.  
*Calomelas*, Ditto.  
*Capiat*, Let him (her) take.  
 Cautè, Cautiously.  
 Charta, Paper.  
 Chartula, Small paper.  
 Cibus, Food.  
*Cochlear*, or *Cochleare*, A  
 Cochleatim, By spoonfuls.  
*Cochleare amplum*, A table-  
   spoonful.  
*Cochleare magnum*, A large  
   spoonful ( $\frac{1}{4}$  fl.  $\frac{3}{4}$ ).  
*Cochleare medium*, or modi-  
   cum, A dessertspoonful (2  
   fl.  $\frac{3}{4}$ ).  
*Cochleare parvum*, A tea-  
   spoonful (1 fl.  $\frac{5}{8}$ ).

*Coctio*, Boiling.  
 Cola, Strain.  
*Colaturæ*, To, or of, the strained  
   liquor.  
 Colatus, Strained.  
*Coletur*, Let it be strained.  
*Colentur*, Let them be strained.  
*Collutorium*, A mouth-wash.  
*Collyrium*, An eye-wash.  
*Coloretur*, Let it be coloured.  
*Compositus*, Compounded.  
 Concisus, Cut.  
*Confectio*, A confection.  
*Congius*, A gallon.  
*Conserua*, A conserve, also  
   keep (thou).  
*Continuantur remedia*, Let the  
   medicines be continued.  
 Contusus, Bruised.  
*Coque*, Boil.  
*coquantur*, Let them be  
   boiled.  
*Coque ad medietatis consump-*  
*tionem*, Boil to the consump-  
   tion of half.  
*Coque secundum artem*, Coq.  
   S.A., Boil according to art.  
*Coque in sufficiente quantitate*  
*aque*, Coq. in S.A., Boil in  
   sufficient water.  
 Cor (gen. cordis), The heart.  
 Cortex, The bark.  
 Coxa, The hip.  
 Cras, Crastinus, To-morrow.  
 Cras mane sumendus, To be  
   taken to-morrow morning.  
 Cras nocte, To-morrow night.  
 Cras vespere, To-morrow even-  
   ing.  
 Crastinus, For to-morrow early.  
*Cujus*, *Cujuslibet*, Of which,  
   of any.  
*Cum*, With.

Cyatho thea, In a cup of tea.

Cyathus, or *Cyathus Vinarius*, Wineglass (1-2 fl. 3).

Da. Give.

detur, Let be given.

De, Of, from.

Deaurentur pilulæ, Let the pills be gilt.

Debita spissitudo, A proper consistency.

Debitus, Due, proper.

Decanta, Pour off.

Decent, decimus, Ten, the tenth.

Decoctum, A decoction.

Decubitus, Lying down.

De die in diem, From day to day.

Dein, Thereupon.

Deglutiatur, May or let be swallowed.

Dejectiones alvi, Stools.

Detur in duplo, Let twice as much be given.

Dexter, dextra, The right.

Diebus alternis, Every other day.

Diebus tertiis, Every third day.

Diluculo, At day-break.

Dilue, Dilutus, Dilute (thou), diluted.

Dimidius, One half.

Directione propriâ (D.P.), With a proper direction.

Dividatur in partes aequales, Let it be divided in equal parts.

Dividendus, -a, -um, To be divided.

Dolor, Pain.

Donec, Until.

Donec alvus bis deliciatur, Until bowels have been twice evacuated.

Donec alvus soluta fuerit, Until the bowels shall be opened.

Donec dolor nephriticus exulaverit, Until the nephritic pain is removed.

Dose, A dose.

Durante dolore, While the pain lasts.

Eadem (fem.), The same.

Eburneus, Made of ivory.

Edulcorata, Edulcorated.

Ejusdem, Of the same.

Electuarium, An electuary.

Emesis, Vomiting.

Enema (plu.-ata), An enema, a clyster.

Evanuerit, Shall have disappeared.

Exhibeatur, Let it be exhibited.

Extende, Spread.

Extende super alutam mollem, Spread thou upon soft leather.

Extractum, An extract.

Fao; Fiat, Fiant (*F.*, *Fl.*), Make; let it, let them be made.

Fac pilulas duodecim, Make 12 pills.

Farina, Flour.

Fasciculus, A bundle that can be carried under the arm.

Febre durante, During the fever.

*Femoribus internis*, To inner parts of thighs.

*Fervens*, Boiling.

*Fiat* (Ft.), Make.

*Ft. cataplasma*, Make a poultice.

*Ft. ceratum*, Make a cerate.

*Ft. chartulæ* xii, Make 12 powders.

*Ft. collyrium*, Make an eye-wash.

*Ft. confectio*, Make a confection.

*Ft. electuarium*, Make an electuary.

*Ft. emplastrum* 6 × 4, Make a plaster 6 in. by 4 in.

*Ft. emplastrum epispasticum*, Make a blister.

*Ft. emp. vesicatorium*, Make a blister.

*Ft. emulsio*, Make an emulsion.

*Ft. enema*, Make an injection (for rectum).

*Ft. gargarisma*, Make a gargle.

*Ft. haustus*, Make a draught.

*Ft. infusum*, Make an infusion.

*Ft. injectio*, Make an injection (for rectum).

*Ft. lege artis* (*F.L.A.*), Let it be made by the rules of the art.

*Ft. linimentum*, Make a liniment.

*Ft. massa*, Make a mass.

*Ft. massa* (et) *divide* in *pilulas* xii, Make

*Ft. massa in pilulas* xii *dividenda*, 12 pills.

*Ft. pilulæ* xii,

*Ft. mistura*, Make a mixture.

*Ft. pulvis*, Make a powder.

*Ft. pulveres* xii,

*Ft. pulvis* et *divide* in *chartulas* xii, Make 12 powders.

*Ft. pulvis in chartulas* xii *dividenda*,

*Ft. secundum artis regulas* (*F.S.A.R.*), Let it be made according to the rules of the art.

*Ft. solutio*, Make a solution.

*Ft. suppositorium*, Make a suppository.

*Ft. suppositoria* iv, Make 4 suppositories.

*Ft. trochisci* xxiv, Make 24 lozenges.

*Ft. unguentum*, Make an ointment.

*Ft. venesectio*, Bleed.

*Fictilis*, Earthen.

*Filtra*, Filter thou.

*Filtrum*, Filtrum, A filter.

*Fistula armata*, A syringe fitted for use.

*Fluidus*, Liquid.

*Formula*, A prescription.

*Frustillatim*, In little pieces.

*Fuerit*, Shall have been.

*Gargarisma*, A gargle.

*Gelatinâ quâvis*, In any kind of jelly.

*Gradatim*, By degrees, gradually.

*Grana sex pondere*, 6 gr. by weight.

*Granum*, Grain.

*Grana*, grains.

*Gratus*, Pleasant.

*Gutta* (*Gtt.*), A drop.

*Guttæ* (*Gtt.*), Drops.

*Guttatim*, By drops.

Guttis quibusdam, With a few drops.

*Harum pilularum sumantur tres (iii)*, Let 3 of these pills be taken.

*Haustus*, A draught.

*Haustus purgans noster (H.p.n.)*, A purge draught made according to a practitioner's own formula.

*Hemdomada*, A week.

*Herba*, An herb.

*Heri*, Yesterday.

*Hic, Hæc, Hoc*, This.

*Hirudo*, A leech.

*Hora (H.)*, An hour.

*Horâ somni (H.S.)*, Just before sleep, or on retiring to rest.

*Horâ undecimâ matutinâ*, At the eleventh hour of the morning.

*Horâ decubitûs (H.D.)*, At the hour of going to bed.

*Horæ unius spatîo*, At the expiration of an hour.

*Horis intermediis*, In the intermediate hours.

*Idem*, The same.

*Idoneus*, Proper.

*Imprints*, First.

*Incide*, Incise, Cut (thou), being cut.

*Indies*, Dally, from day to day.

*Infunde*, Pour in.

*Infusum*, An infusion.

*Injectio*, An injection.

*Inficiatur enema*, Let a clyster be given.

*In pulmento*, In gruel.

*Instar*, As big as.

*Inter*, Between.

*Internus*, Inner.

*Jam*, Now.

*Julepus, Julapion, Julapium*,

A julep.

*Jusculum*, A broth.

*Juxta*, Near to.

*Kali preparatum*, Prepared kali. Pot. carb. or bicarb.

*Lac*, Milk.

*Lana*, Flannel.

*Languor*, Faintness.

*Lateri dolenti*, To the side that is painful.

*Lectus*, A bed.

*Linimentum*, A liniment.

*Linteum*, Lint.

*Liquor*, A solution.

*Lotio*, A lotion.

*Macerâ*, Macerate.

*Magnus*, Large.

*Mane*, Mane primo, In the morning, very early in the morning.

*Manipulus*, A handful.

*Manus*, The hand.

*Massa, Massa pilularis*, A mass, a pill mass.

*Matutinus*, In the morning.

*Medius*, Middle.

*Mensura*, By measure.

*Mica panis*, Bread crumb.

*Minimum (m)*, A minute.

*Minutum*, A minute.

*Misce*, Mix.

*Mistura*, A mixture.

*Mitte*, Mitatur, Mitantur,

Send, let it (them) be sent.

*Modicus*, Middle-sized.

*Modo prescripto*, In the manner prescribed.

*Mora*, Delay.



More dicta, More solito, In the manner directed, In the usual manner.

Mortarum, A mortar.

Ne tradas sine nummo, Do not deliver it unless paid.

Necnon, Also.

Nisi, Unless.

Non, Not.

Nox, noctis, Night.

Nucha, Nape of neck.

Numerus (No.), Number.

Nux Moschata, A nutmeg.

Octarius, A pint.

Octavus, Eighth.

Octo, Eight.

Oleum lini sine igne, Cold-drawn linseed oil.

Oleum olivæ optimum (O. O. O.), Best olive oil.

Omni hora, Every hour.

Omni biberio, Every two hours.

Omni quadrante hore, Every  $\frac{1}{4}$  hour.

Omni mane, Every morning.

Omni nocte, Every night.

Opus, Need, occasion.

Ovum, An egg.

Pannus, A rag.

Pars, partes, A part.

Partes æquales, Equal parts.

Partitis vicibus, In divided doses.

Parvulus, An infant.

Coch. parvulum, A teaspoonful.

Parvus, Little.

Pastillus, pastillum, A little ball of paste.

Pediluvium, A foot-bath.

Per, Through, by.

Peractâ operatio emetici, When the operation of the emetic is finished.

Per deliquum, By deliquescence.

Pergo, pergere, To go on with.

Phala prins agitata (P. P. A.),

The bottle having been first shaken.

Pilula, A pill.

Poculum, A cup.

Pocillum, A little cup.

Pondere, By weight.

Pondus civile, Civil weight (Av.).

Pondus medicinale, Medicinal weight (Ap.).

Pone aurem, Behind the ear.

Post singulas sedes liquidas, After every loose stool.

Potus, Drink.

Preparata, Prepared.

Primo mane, Very early in the morning.

Primus, The first.

Pro, For.

Pro ratione atatis, According to age.

Pro re nata, Occasionally.

Pugillus, A pinch.

Pulvis, pulverizatus, A powder, powdered.

Pyxis, A pill-box.

Quantum libet, Q. placet, Q. vis, Q. volueris, As much as you please.

Q. sufficiat, Q. satis, As much as is sufficient.

Quâquâ hora, Each hour.

Quaque (Q. Q.), Each, every.

Quaque hora, Each hour.

Quartus, Fourth.  
 Quater, Four times.  
 Quatuor, Four.  
 Quibus, From which.  
 Quinque, Five  
 Quintus, The fifth.  
 Quoque (*Q. Q.*). Also.  
 Quorum, Of which.  
 Quotidie, Daily.  
  
 Ratio, Proportion.  
 Recens, Fresh.  
 Recipe (*R.*), Take.  
 Redactus in pulverem, Redigatur in pulverem, Let it be reduced to powder.  
 Regio umbilici, The umbilical region.  
 Reliquis, Remaining.  
 Repetatur, repeatantur (*Rept.*), Let it be repeated, let them be repeated.  
 Respondere, To answer.  
 Retinere, To keep.  
  
 Saltem, At least.  
 Scatula, A box.  
 Selicet, Namely.  
 Secundem artem (*S.A.*), According to art.  
 S. naturam (*S.N.*), According to nature.  
 Secundus, Second.  
 Sedes, The alvine evacuations.  
 Semel, Once.  
 Semis (*Ss.*), A half.  
 Semidrachma, Half a drachm.  
 Semihora, Half an hour.  
 Septem, Seven.  
 Septimana, A week.  
 Sescuncia, An ounce and a half.  
 Sesquihora, An hour and a half.

Sex, Six.  
 Sextus, Sixth.  
 Si, If.  
 Signa, Mark thou.  
 Signetur nomine proprio, Let it be written upon with a proper (not trade) name.  
 Simul, Together.  
 Sine, Without.  
 Singulorum (-arum), Of each.  
 Si non valeat, If it does not answer.  
 Si opus sit, If necessary.  
 Si vires permittant, If strength will permit.  
 Sit, Let it be.  
 Solus, Alone.  
 Solve, Dissolve.  
 Solvo, -ere, -utus, To dissolve, dissolved.  
 Somnus, Sleep.  
 Spiritus vinosus, Ardent spirit.  
 Statim, Immediately.  
 Stet, stent, Let it (them) stand.  
 Stratum superstratum (*S.S.S.*), Layer upon layer.  
 Subactus, Subdued.  
 Sub finem coctionis, When the boiling is nearly finished.  
 Subinde, Frequently.  
 Sumat taleni, Let patient take one like this.  
 Sume, Sumat, Sumantur.  
 Sumendus, Take thou, let him take, let it be taken, let them be taken, to be taken.  
 Summitates, Summits or tops.  
 Superbibendo haustum, Drinking afterwards the draught.  
 Supra, Above.  
 Tabella, A lozenge.  
 Talis, Such a one.

'Tempori dextro, To the right temple.

'Tempus (gen. -oris), Time or temple.

'Ter, Three times.

'Ter in die, Three times a day.

'Tere, Rub.

'Tero, I rub.

'Tertius, Third.

'Tinctura, Tincture.

'Tres, Three.

'Triduum, Three days.

'Tritura, Triturate.

'Trochisci, Lozenges.

'Tussis, A cough.

'Uncia, An ounce.

'Ut dictum, As directed.

'Utendum, To be used.

'Uto, uti, To make use of.

Vas vitreum, A glass vessel.

Vehiculum, A vehicle.

Vel, Or.

Venasectio brachii, Bleeding in the arm.

Vesper, vespers, The evening.

Vices, Turns.

Vires, Strength.

Vitellus, Yolk.

Vitello ovi solutus, Dissolved in yolk of an egg.

Vitreum, vitrum, Glass.

Vomitione urgente, The vomiting being troublesome.

## A GLOSSARY OF THE CHIEF LATIN WORDS USED IN MEDICINE OR PHARMACY.

D. = declension, C. = conjugation, tr. = transitive, intr. = intransitive, gov. = governs or is followed by, mas. = masculine, fem. = feminine, neut. = neuter, comp. = comparative, superl. = superlative, part. = participle. The student will observe that the words and constructions are in many instances not classical Latin.

Ā, āb, or abs, *by, from* (gov. abl.).

Aa, āna, *of each* (indeclinable).

Abdomen, inis, neut., 3rd D., *the belly, abdomen*.

Abēō, īi, itum, īre, 4th C., intr., *to go away*.

Absolve, vi, ūtum, vēre, 3rd C., tr., *to set free*.

Absque, *without* (gov. abl.).

Absum, fui, esse, pres. part. absens, irreg., intr., *to be absent*.  
Ac, *and*.

Acēciā, a, fem., 1st D., *the, an, acacia*.

Accidit, impers. (from accidō, cidi, ēre, 3rd C., intr.), *it happens*.

Acēr, acris, *acre, sharp*.

Acerrimus, ā, um (superl. of acer), *sharpest*.

Acētas, ātis, mas., 3rd D., *the, an, acetate*.

Acētum, ī, neut., 2nd D., *vinegar*.

Aciditas, ātis, fem., 3rd D., *sourness, acidity*.

Acidum, ī, neut., 2nd D., *an acid*.

Acidus, a, um, *acid*.

Ācus, ūs, dat. and abl. plu. ūbus, fem., 4th D., *the, a, needle*.  
Ad, *to* (gov. acc.).

Adde, doli, ditum, dēre, 3rd C., tr., *to add*.

Adco, vi (i), itum, ire, 4th C., *to approach*.

Ādeps, adipis, mas., 3rd D., *lard*.

Adhibeo, ui, itum, 2nd C., tr., *to use*.

Admōveo, mōvi, mōtum, vēre, 2nd C., *to apply*.

Adstringo (Astr.), nxi, ictum, ingēre, 3rd C., tr., *to bind*.

Adsum, affūi, adesse, irreg., intr., *to be present*.

- Adversus (um), *against* (gov. acc.).  
 Ager, agra, agrum, *sick* (*the patient*).  
 Aer, æris, acc. æra or ærem, mas., 3rd D., *the air*.  
 Æstas, ætis, fem., 3rd D., *the, a, summer*.  
 Æther, æris, acc. athērā or athërem, mas., 3rd D., *ether*.  
 Affectō, ævi, ātum, āre, 1st C., tr., *to affect*.  
 Afficō, feci, fectum, ficēre, 3rd C., tr., *to affect, touch*.  
 Affectus, a, um (part. from afficō), *affected*.  
 Agēr, grī, mas., 2nd D., *a field*.  
 Aggrēdior, essus sum, i (3rd C. deponent.), *to come on*.  
 Agtātus, ā, um, *shaken*.  
 Ago, ēgi, actum, ēre, 3rd C., *to do, act*.  
 Albus, a, um, *white*.  
 Aliquī, quā, quīd, *some one*.  
 Aliūs, alia, aliud, gen. aliūs, *another*.  
 Alūs, i, fem., 2nd D., *the, an, alder*.  
 Alōō, ēs, fem., acc. oēn, dat. and abl. oē, 1st D., *the, an, aloe*.  
 Altēr, era, erum, gen. iūs, *one of two*.  
 Altior, ōris, neut. altius (comp. of altus), *higher*.  
 Altissimus, a, um (superl. of altus), *highest*.  
 Alūmēn, inīs, neut., 3rd D., *alum*.  
 Alūta, æ, fem., 1st D., *leather*.  
 Alvūs, i, fem., 2nd D., *the, a, belly*.  
 Ambō, æ, ō, *both*.  
 Ammōniā, æ, fem., 1st D., *ammonia*.  
 Amō, āvī, ātum, āre, 1st C., tr., *to love, like*.  
 Amplūs, ā, um, *full*.  
 Amygdālā, æ, fem., 1st D., *the, an, almond* (in pharm.); um, i, neut., 2nd D. (classical); us, i, mas., 2nd D. (*the, an, almond tree*, Linne).  
 Amylum (on), ī, neut., 2nd D., *starch*.  
 An, *whether* (in questions).  
 Animāl, ālis, neut., 3rd D., *the, an, animal*.  
 Annus, i, mas., 2nd D., *the, a, year*.  
 Ante, *before* (gov. acc.).  
 Antimonium, ī, neut., 2nd D., *antimony*.  
 Apērēns, entis (part. from āpērō), *opening*.  
 Āpīs, īs, fem., 3rd D., *the, a, bee*.  
 Applicō, āvī (ui), ātum, āre, 1st C., *to apply*.  
 Apūd, *near, at* (gov. acc.).

- Āquā, æ, fem., 1st D., *water*.  
 Āquōsūs, ā, um, *watery, aqueous*.  
 Argentum, i, neut., 2nd D., *silver*.  
 Argentēus, a, um, *made of silver, silvery*.  
 Aromātīcūs, ā, um, *aromatic*.  
 Ars, artīs, fem., 3rd D., *the, an, art*.  
 Arsenias, ātis, mas., 3rd D., *the, an, arseniate*.  
 Āsellūs, ī, mas., 2nd D., *the, a, codfish*.  
 Āspēr, ā, um, *rough*.  
 Āter, atra, atrum, *black*.  
 Auctor, ōris, mas., 3rd D., *the, an, author*.  
 Andax, ācis, *bold*.  
 Audēō, ausus sum, ēre, 2nd C. (semi-depont.), *to dare*.  
 Audiō, īvi, itum, īre, 4th C., tr., *to hear*.  
 Aurantium, īi, neut., 2nd D., *the, an, orange*.  
 Aurātūs, a, um, *golden*.  
 Aurīs, īs, fem., 3rd D., *the, an, ear*.  
 Aurum, ī, neut., 2nd D., *gold*.  
 Aut, *or*.  
 Āvis, is, fem., 3rd D., *the, a, bird*.  
 Balnēum, ēī, neut., 2nd D., *the, a, bath*.  
 Barbadensis, ē, *appertaining to Barbadoes*.  
 Bēnč, *well*.  
 Benzōas, ātis, mas., 3rd D., *the, a, benzoate*.  
 Bibō, bibī, bibēre, 3rd C., tr., *to drink*.  
 Bicarbōnas, ātis, mas., 3rd D., *the, a, bicarbonate*.  
 Bis, *twice*.  
 Bōnūs, a, um, *good*.  
 Bōs, bōvis, mas., irr. D., *the, an, ox*.  
 Bōvīnūs, a, um, *of an ox*.  
 Brachium, īi, neut., 2nd D., *the, an, arm*.  
 Brēvis, e, *short*.  
 Buchu, indecl., *buchu*.  
 Bullio, īvi, itum, īre, 4th C., *to boil*.

Cetērus (cet), ā, um, *the other*.

Caleār, āris, neut., 3rd D., *a spur*.

Cāldus, a, um, *warm*.

Cālōmēlas, gen. ānūs, dat. ānī, abl. anč, acc. ānā, mas., 3rd D. (also neut. indecl.), *calomet*.

Cālōr, ōris, mas., 3rd D., *heat*.

- Calumbā, a, fem., 1st D., *Calumla*.  
 Calx, leis, fem., 3rd D., *lime*.  
 Camphorā, a, fem., 1st D., *camphor*.  
 Cantharās, idis, fem., 3rd D., *the blistering beetle*.  
 Capillus, i, mas., 2nd D., *a hair*.  
 Capiō, cēpi, captum, capērē, 3rd C., tr., *to take*.  
 Caput, itis, neut., 3rd D., *the, a, head*.  
 Carbo, ōnis, mas., 3rd D., *carbon*.  
 Carbōnas, ātis, mas., 3rd D., *the, a, carbonate*.  
 Cardamōmum, i, neut., 2nd D., *cardamon*.  
 Caseārellā, a, fem., 1st D., *cascarilla*.  
 Cassiā, a, fem., 1st D., *cassia*.  
 Castānēā, a, fem., 1st D., *chestnut*.  
 Cataplasmā, ātis, neut., 3rd D., *the, a, cataplasm, poultice*.  
 Catechu, indecl., *catechu*.  
 Causā, a, fem., 1st D., *the, a, cause*.  
 Cēlēr, ēris, ērē, *swift*.  
 Cērā, a, fem., 1st D., *wax*.  
 Cērātum, ī, neut., 2nd D., *the, a, cerate*.  
 Chartā, a, fem., 1st D., *the, a, paper (i. e. powder)*.  
 Chartūla, a, fem., 1st D., *a powder*.  
 Chloras, ātis, mas., 3rd D., *the, a, chlorate*.  
 Chlorēus, a, um, *chloric*.  
 Chloroformum, i, neut., 2nd D., *chloroform*.  
 Cinchōna, a, fem., 1st D., *cinchona*.  
 Cinnāmōmum, i, neut., 2nd D., *cinnamon*.  
 Circā, circum, *around (gov. acc.)*.  
 Circitēr, *about (gov. acc.)*.  
 Cis, citrā, *on this side of (gov. acc.)*.  
 Citras, ātis, mas., 3rd D., *the, a, citrate*.  
 Citricus, a, um, *citric*.  
 Ciam, *secretly, without the knowledge of (gov. acc. and abl.)*.  
 Claudō, clausi, clausum, ēre, 3rd C., tr., *to close*.  
 Cochlicāre, is, neut., 3rd D., *the, a, spoon*.  
 Cōnā, a, fem., 1st D., *supper*.  
 Cōnō, āvi, and ātus sum, āre, 1st C., intr., *to have supper, sup.*  
 Cōpi, defectv. verb. with perf. tenses, *I have begun*.  
 Colchicūm, i, neut., 2nd D., *colchicum*.  
 Collīrīum, īi, neut., 2nd D., *the, an, eye-lotion*.  
 Cōlō, āvi, ātum, āre, 1st C., tr., *to strain*.  
 Cōlō, cōlūi, cultum, ēre, 3rd C., tr., *to cultivate*.  
 Colocynthis, idis, fem., 3rd D., *colocynth*.

*Colôr, ôris, mas., 3rd D., colour.*

*Colôro, âre, 1st C., tr., to colour.*

*Commûnis, e, comm-n.*

*Compositus, a, um, compounded.*

*Concidô, cidi, cîsum, êre, 3rd C., tr., to slice, cut up.*

*Concidô, idi, cidêre, 3rd C., intr., to fall down.*

*Condô, didi, itum, êre, 3rd C., tr., to build.*

*Confectiô, ônis, fem., 3rd D., the, a, confection.*

*Congitûs, i, mas., 2nd D., a gallon.*

*Cônor, âris, âtus sum, âri (deponent), to attempt.*

*C'onservâ, a, fem., 1st D., the, a, conserve.*

*C'onservâ is 2nd pers. imper. md. of conservo.*

*C'onservô, âvi, âtum, âre, 1st C., tr., to keep.*

*C'onsô, stitî, stâtum, stâre, 1st C., intr., to stand still*  
*(constat, impers., it is acknowledged, gov. acc. and*  
*inf.).*

*Contrâ, against, contrary to (gov. acc.).*

*Contundô, tûdî, tûsum, tundêre, 3rd C., tr., to bruise.*

*Convalescô, lûi, scêre, 3rd C., inceptv., to recover health.*

*Copîa, a, fem., 1st D., plenty.*

*Côquô, coxî, coctum, uêrê, 3rd C., tr., to boil, cook.*

*Cor, dis, neut., 3rd D., the heart.*

*Côram, in the presence of (gov. abl.).*

*Cornû, us, neut., 4th D., the, a, horn.*

*Corpûs, ôris, neut., 3rd D., the, a, body.*

*Corrigo, rexî, rectum, rigêre, 3rd C., tr., to correct.*

*Cortex, icis, mas. or fem., 3rd D., bark.*

*Crâs, to-morrow.*

*Crêta, æ, fem., 1st D., chalk.*

*Coxa, æ, fem., 1st D., the hip.*

*Crûs. crûris, neut., 3rd D., the, a, leg.*

*Crystallûs, i, mas., 2nd D., the, a, crystal.*

*Cûbicûlum, i, neut., 2nd D., the, a, bedroom.*

*Cûbô, ûi, itum, âre, 1st C., intr., to lie down (cubitus ire, to*  
*lie asleep).*

*Cûjus, â, um, whose? of which.*

*Cum, with (gov. abl.).*

*Cuprum, i, neut., 2nd D., copper.*

*Cûrô, âvi, âtum, âre, 1st C., tr., to cure.*

*Currô, cûcurri, cursum, currêre, 3rd C., intr., to run.*

*Cursô, âvi, âtum, âre (frequent. verb), to run.*

*Cusso, indecl., cusso, koussô.*

*Cûthûs, i, mas., 2nd D. the, a, cup, wineglass.*



Dare, Infin. from do.

De, *from, concerning* (gov. abl.).

Dēcēt, ūt, ere, 2nd C., impers., *it is seemly*.

Dēcoctum, i, neut., 2nd D., *the, a, decoction*.

Dēdīcēt, dedecent, dedecere, 2nd C., impers., *it is unseemly*.

Dēfēro, defull, delatum, deferrē, irreg. tr., *to hand over, entrust* (gov. dat. of person, acc. of thing).

Dēinde, *then, next*.

Dēlectāt, impers., *it pleases*.

Dēlectō, āvi, ātum, āre, 1st C., tr., *to please*.

Dēligō, āvi, ātum, āre, 1st C., tr., *to bind*.

Dēligō, dēlegi, dēlectum, dēligere, 3rd C., tr., *to select, choose*.

Dēns, dentis, mas., 3rd D., *the, a, tooth*.

Dēstillātio, onis, fem., 3rd D., *distillation, from*

Dēstillō, āvi, ātum, āre, 1st C., tr., *to distil*.

Dēsūm, dēsūi, dēsse, irreg., intr., *to be wanting*.

Dēxter, ērā, ērum (and tra. trum), *right, as opposed to left*.

Dīco, dixi, dictum, dicere, 3rd C., tr., *to call, say*.

Dīes, eī, mas. and fem., 5th D., *the, a, day*.

Dīffīcilis, ē, *difficult*.

Dīgītus, i, mas., 2nd D., *a finger, digit*.

Dīgnē, *worthily*.

Dīgnior, ōris, comp. of dignus, *more worthy*.

Dīgus, a, um, *worthy*.

Dīmīdus, a, um, *half* (um, i, neut., 2nd D., *the, a, half*).

Dīrīgō, dirēxi, directum, ere, 3rd C., tr., *to direct*.

Dīsīmilis, ē, *unlike*.

Dīsūlphas, alis, mas., 3rd D., *the, a, disulphate, bisulphate*.

Dītōr, ōris, *richer, comp. from dives*.

Dītīssimus, ā, um, *richest, superl. from dives*.

Dīvīdo, vīsi, vīsum, dēre, 3rd C., tr., *to divide*.

Dō, dēdi, dātum, dāre, 1st C., tr., *to give*.

Dōcēō, dēcūi, doctum, ēre, 2nd C., tr., *to teach*.

Dōlō, ūi, itum lēre, 2nd C., intr., *to feel pain*.

Dōlōr, ōris, mas., 3rd D., *pain*.

Dōmī, old gen. form of domus, *at home*.

Dōmus, ūs, fem., 2nd and 4th D., *the, a, house*.

Dōnēc, *until*.

Dōsīs, ūs, acc. dosin, fem., 3rd D., *the, a, dose*.

Drachmā, ā, fem., gen. plu. mūm, 1st D., *a drachm, 3*.

Dulcīs, dulcē, *sweet*.

Ē, ex, *out of* (gov. abl.)

Effervescentiā, a, fem., 1st D., *effervescence*.

Ēgð, mēi, I.

Electuārium, ī, neut., 2nd D., *the, an, electuary*.

Ēmendō, avi, ātum, āre, 1st C., tr., *to amend*.

Ēmplastrum, ī, neut., 2nd D., *the, a, plaster*.

Ēnēmā, ātis, neut., 3rd D., *the, a, clyster*.

Ēō, ivi (īi), itum, īre, irreg., 4th C., intr., *to go*.

Ērgā, *towards* (gov. acc.).

Ēsuriō, itum, īre, desid. verb, intr., *to be hungry*.  
*It, and.*

Ēvānesco, anui, ēre, incept., 3rd C., *to disappear*.

Exēō, exī, exītum, exīre, 4th C., intr., *to go out*.

Exhibeo, ūi, itum, ēre, 2nd C., intr., *to exhibit*.

Expēdit, impers., *it is expedient*, from

Expēdiō, ivi (īi), itum, īrē, 4th C., tr., *to prepare, set free*.

Expēriōr, pertūs sum, perīrī, dep. verb, 4th C., tr., *to try*.

Expers, pertis, *free from* (gov. abl. and gen.).

Extendo, di, sum and tum, ēre, 3rd C., tr., *to spread*.

Extērūs, ā, um, *outside*.

Extremus, superl. of exterus, *outermost, extreme*.

Extrā, *outside of* (gov. acc.).

Extractum, ī, neut., 2nd D., *the, an, extract*.

Exulo, āre, 3rd C., intr., *to be banished*.

Fac, imperatr. of facio.

Fāciēs, ēi, fem., 5th D., *the face*.

Fācillīs, ē, *easy*.

Fāciō, fēcī, factum, ēre, 3rd C., tr., *to make*.

Fāgūs, ī, fem., 2nd D., *the beech*.

Febriculā, a, fem., 1st D., *fever*.

Febrīs, is, acc. im, cm, abl. ī, fem., 3rd D., *the, a, fever*.

Fel, fellis, neut., 3rd D., *gall*.

Felix, icls, *happy*.

Fēro, tūli, lātum, ferre, irreg., tr., *to bear*.

Ferrum, ī, neut., 2nd D., *iron*.

Ferveo, vi and lui, ere, 2nd C., intr., *to be hot*.

Fictilis, e, *earthen*.

Fīcus, ūs, dat. and abl. plu. ficūbūs, fem., 4th D., *a fig*.

Fido, fisis sum, fidere (semi-dep.), *to trust*.

Filiā, a, dat. and abl. plu. ābus, *the, a, daughter*.

Filiūs, īi, voc. filii, *the, a, son*.

- Pllix, yels, fem., 3rd D., *a fern*.  
 Pmio, ivi and ii, itum, ire, 4th C., tr., *to finish*.  
 Plō, factus sum, fieri, passv. of fāclō, *to be made*.  
 Plātūs, ūs, mas., 4th D., *flatulence*.  
 Plāvūs, ā, um, *yellow*.  
 Plēs, flōris, mas., 3rd D., *the, a, flower*.  
 Plāviātīlis, e, adj., *pertaining to a river*.  
 Pctidūs, a, um, *fecid*.  
 Pctum, ii, neut., 2nd D., *a leaf*.  
 Fontanus, ā, um, *appertaining to a fountain, spring*.  
 Frigidūs, ā, um, *cold*.  
 Fructus, ūs, mas., 4th D., *the, a, fruit*.  
 Frūd, ēris, frūitus and fructus sum, frūi, depont., 3rd C., *to enjoy*.  
 Fūgax, ācis, *fleeting*.  
 Fūglō, fūgī, fūgitum, fūgōre, 3rd C., intr., *to flee*.  
 Fungōr, ēris, functus sum, fungī, depont., 3rd C., *to perform, discharge*.  
 Galbānum, i, neut., 2nd D., *galbanum*.  
 Gallicūs, ā, um, *gallic*.  
 Gargārisma, ātis, neut., 3rd D., *the, a, gargle*.  
 Gentianā, a, fem., 1st D., *gentian*.  
 Gēnū, ūs, neut., 4th D., *the, a, knee*.  
 Glycyrrhizā, a, fem., 1st D., *liquorice*.  
 Grācillis, ē, *slender*.  
 Grādūs, ūs, mas., 4th D., *the, a, step*.  
 Grāmēn, inīs, neut., 3rd D., *grass*.  
 Grānum, i, neut., 2nd D., *the, a, grain*.  
 Guttā, a, fem., 1st D., *the, a, drop*.  
 Hābēāt, *let him have, take from*.  
 Hābēcō, ūi, itum, bēre, 2nd C.; trs., *to have*.  
 Haustūs, ūs, mas., 4th D., *the, a, draught*.  
 Hebdomāda, a, fem., 1st D., *a week*.  
 Hērī, *yesterday*.  
 Hīc, hēc, hōc, *this*.  
 Hīc, adv., *near*.  
 Hīems, īs, fem., 3rd D., *winter*.  
 Hīrūdo, ūdinis, fem., 3rd D., *the, a, leech*.  
 Hōrā, a, fem., 1st D., *the, an, hour*.  
 Hōdiē, *to-day*.  
 Hōmo, inīs, mas., 3rd D., *a man*.

**Hortor**, āris, hortātus sum, āri, *to exhort.*

**Humilis**, ē, *low.*

**Humi**, *on the ground.*

**Hūmūs**, ī, fem., 2nd D., *the ground.*

**Hydragrum**, ī, neut., 2nd D., *mercury.*

**Hydras**, atis, mas., 3rd D., *the, a, hydrate.*

**Hydrochlōras**, ātis, mas., 3rd D., *hydrochlorate.*

**Hyoscyanūs** ī, mas., 2nd D., *hyoscyamus.*

**Hydrocyanicūs**, ā, um, *hydrocyanic, prussic.*

**Ībi**, *there.*

**Īdem**, eādem, Īdem, *the same.*

**Īdōnēūs**, ā, um, *fit.*

**Ignis**, is, mas., 3rd D., *the, a, fire.*

**Illē**, illā, illūd, *that.*

**Imminūo**, ūi, ūtum, ūēre, 3rd C., tr., *to diminish.*

**Impōnō**, ōsūi, ōsitum, nēre, 3rd C., tr., *to place upon.*

**Imprimis**, *especially, chiefly.*

**Imūs**, ā, um, superltv. of inferus, *low.*

**In**, *in (gov. abl.).*

**Inēo**, inīvi (īi), inītum, inīre, 4th C., *to commence, go into.*

**Inferiōr**, ōris, comparlv. of inferus, *lower.*

**Inferūs**, ā, um, *low.*

**Infinūs**, ā, um, superltv. of inferus, *lowest.*

**Infrā**, *below (gov. acc.).*

**Infricō**, cūi, etum (cātum), āre, 1st C., tr., *to rub in.*

**Infusum**, ī, neut., 2nd D., *the, an, infusion.*

**Ingens**, ntis, *large.*

**Ingentior**, ōris, *larger.*

**Inspisso**, āvi, ātum, āre, 1st C., tr., *to thicken, inspissate.*

**Insum**, fūi, esse, *to be in, upon.*

**Inter**, *between (gov. acc.).*

**Interdum**, *sometimes, meanwhile.*

**Intēreō**, īi, Itum, īre, 4th C., *to perish.*

**Intersum**, fūi, esse, *to take part in, be present at.*

**Intērūs**, ā, um, *inside, within.*

**Intimē**, *intimately, very well.*

**Invadō**, āsi, āsum, dēre, 3rd C., *to attack.*

**Involvo**, vi, volūtum, vēre, 3rd C., tr., *to roll in.*

**Iodidum**, ī, neut., 2nd D., *the, an, iodide.*

**Ipecacuanhā**, ā, fem., 1st D., *ipecacuanha.*

**Ipsē**, ipsū, ipsum, *self.*

Ipsissimus, *the very same.*

Is, *ěš*, Id, *he, she, it.*

Istě, *istā*, *istud*, *that.*

Iter, *itineris*, neut., 3rd D., *the, a, journey.*

Jamaicensis, *ě*, *pertaining to Jamaica.*

Jecur, *oris*, neut., 3rd D., *the, a, liver.*

Jusculum, i, neut., 2nd D., *broth.*

Juvēns, *young.*

Juxtā, *near*, next to (gov. acc.).

Lābōr, *oris*, mas., 3rd D., *labour, work.*

Lāc, *lactis*, acc. *lactem*, neut., 3rd C., *to glide by.*

Languor, *oris*, mas., 3rd D., *faintness.*

Lāpis, *idis*, mas., 3rd D., *the, a, stone.*

Lātus, *ā*, um, *broad.*

Lātus, *eris*, neut., 3rd D., *the, a, side.*

Laxativūs, *ā*, um, *laxative.*

Lectus, i, mas., 2nd D., *the, a, bed.*

Lēzō, *legi*, *lectum*, *ērě*, 3rd C., tr., *to peruse, read.*

Lēnis, *ě*, *gradual, gentle.*

Lēnitiuūs, *ā*, um, *lenitive.*

Lēvis, *ě*, *light.*

Lēvis, *ě*, *smooth.*

Lībēr, *črā*, *crum*, *free.*

Lībērī (plu.), 2nd D., *children.*

Libitum, i, neut., 2nd (us, ūs, 4th) D., *pleasure.*

Lībēt, *libūt*, *libitum est*, *ěre*, *impers.*, 2nd C., *it pleases.*

Librā, *ā*, fem., 1st D., *a pound.*

Licēt, *licūt* (*licitum est*), *licēre*, *impers.*, 2nd C., *it is lawful.*

Lignum, i, neut., 2nd D., *wood.*

Limōn, *enis*, fem., 3rd D., *the, a, lemon.*

Linimentum, i, neut., 2nd D., *the, a, liniment.*

Liquēt, *ērě*, *impers.*, 2nd C., *it is clear.*

Liquidūs, *ā*, um, *liquid.*

Liquor, *liquōris*, mas., 3rd D., *the, a, fluid, solution.*

Lōquor, *eris*, *locūtus sum*, *loquī*, 3rd C., *to speak.*

Lōtio, *ionis*, fem., 3rd D., *the, a, wash, lotion.*

Lux, *lūcis*, fem., 3rd D., *light.*

Lýttā, *ā*, fem., 1st D., *the Spanish fly.*

Mācērō, *āvi*, *ātum*, *ārě*, 1st C., tr., *to soak, macerate.*

Māgis, ad v., *more.*

- Magnēsīā, æ, fem., 1st D., *magnesia*.  
 Magnitūdo, mīs, fem., 3rd D., *magnitude, size*.  
 Magnūs, a, um, *large, great*.  
 Māior, ōris, comparv. of magnus, *greater*.  
 Mālē, adv., *ill*.  
 Mālō, ūi, mallē, irreg. C., tr., *to prefer*.  
 Mālūs, ā, um, *bad*.  
 Mānē, neut., indecl., *in the morning*.  
 Mārinus, ā, um, *of the nature of the sea*.  
 Marmor, ōris, neut., 3rd D., *marble*.  
 Massā, æ, fem., 1st D., *a (pill) mass*.  
 Maxīmē, *most*.  
 Maximūs, ā, um, superlv. of magnus, *greatest*.  
 Mēdicāmentum, ī, neut., 2nd D., *the, a, drug, medicine*.  
 Mēdius, ā, um, *intermediate*.  
 Mel, mellis, neut., 3rd D., *honey*.  
 Meliōr, ōris, neut., mēliūs, *better*.  
 Mensis, is, mas., 2nd D., *the, a, month*.  
 Mentā, æ, fem., 1st D., *mint*.  
 Mercūrīūs, īi, voc. ī, mas., 2nd D., *mercury*.  
 Meridiēs, mas., 5th D., *noon*.  
 Mētiōr, īris, mensus sum, mētirī, depont., 4th C., tr., *to measure*.  
 Minimum, ī, neut., 2nd D., *a minim*.  
 Minimūs, a, um, *smallest*.  
 Ministēr, trī, mas., 2nd D., *the, a, servant*.  
 Minōr, ōris, *smaller*.  
 Miscēō, scūi, mīstum or mixtum, ēre, 2nd C., tr., *to mix*.  
 Mīsr, ērā, ērum, *wretched*.  
 Mīserēor, mīserītūs sum or mīsertūs sum, mīšērēri, depont., 2nd C., *to pity*.  
 Mīserēt or mīserētur, mīserītum est, mīšērēre, impers., 2nd C., *it excites pity*.  
 Mīstūrā, æ, fem., 1st D., *the, a, mixture*.  
 Mitis, mīte, *mild*.  
 Mittō, mīsi, mīssum, ēre, 3rd C., tr., *to send*.  
 Mōlō, *only*.  
 Mōdūs, ī, mas., 2nd D., *way, manner*.  
 Mollis, ē, *soft*.  
 Mōnēō, ūi, itum, ēre, 2nd C., tr., *to advise*.  
 Morbus, ī, mas., 2nd D., *the, a, disease*.  
 Mōrliōr, mortūūs sum, mōrī, depont., 3rd C., *to die*.  
 Morrhūā, æ, fem., 1st D., *the, a, cod*.

Mors, mortis, fem., 3rd D., *death*.

Mucilago, inis, fem., 3rd D., *mucilage*.

Multūs, ā, um, *much*.

Mutō, āvī, ātum, āre, 1st C., tr., *to change*.

Nam, *for*.

Nātū mājor, *elder*; natu maximus, *eldest*.

Natu minor, *younger*; natu minimus, *youngest*.

Nātūra, a, fem., 1st D., *nature*.

Nē, *lest*.

Nēquam, *worthless*; comp. nēquior, ōris; superl. nēquissimūs, ā, um.

Neutēr, trā, trum, gen. triūs, *neither of two*.

Nigēr, rā, rum, *black*.

Nihil, neut., indecl., *nothing*.

Nīl, contract. of nihil, *nothing*.

Nīmīs, *too much*.

Ningūt, *it snows*, from

Ningō, nxit, gēre, 3rd C., intr., *to snow*.

Nisl, *unless*.

Nitras, ātis, mas., 3rd D., *the, a, nitrate*.

Nitrōsus, ā, um, *nitrous*.

Nivālis, e, *pertaining to snow*.

Nōlō, ūī, nollē, irreg. C., *to be unwilling*.

Nōmēn, inis, neut., 3rd D., *the, a, name*.

Nōtō, āvī, ātum, āre, 1st C., tr., *to note, observe*.

Nox, ctis, fem., 3rd D., *night*.

Nullūs, ā, um, *none*.

Nux, nūctis, fem., 3rd D., *the, a, nut*.

Nyctēmerum, neut., 2nd D., *a day and night, 24 hours*.

Ōb, *on account of* (gov. acc.).

Ōbēō, īvī (īī), Itum, īre, *to meet (death), die*.

Oblīquūs, ā, um, *oblique*.

Obsum, obfui (offui), ōbesse, irreg. C., *to be against, injure*.

Ōctārlūs, īī, mas., 2nd D., *a pint*.

Ōcūlūs, ī, mas., 2nd D., *the, an, eye*.

Odor, ōris, mas., 3rd D., *the, an, odour, scent*.

Offīcīna, a, fem., 1st D., *the, a, shop*.

Ōlēcūm, ēī, neut., 2nd D., *the, an, oil*.

Ōmnīs, ē, *every, all*.

Ōdērōr, ātus sum, āvī, depont., 1st C., *to work*.

- Ōplum, īī, neut., 2nd D., *opium*.  
 Ōportēt, ūlt, ēre, impers., 2nd C., *it behoves*.  
 Ōptimūs, ā, um, *best*.  
 Ōpūs, ērls, neut., 3rd D., *a work*; ōpūs, indecl., *necessity*.  
 Ōrlōr, ortūs sum, īri, depont., 4th C., *to rise*.  
 Pall, scō, pallui, scēre, inceptv., 3rd C., *to turn pale*.  
 Pallcō, ēre, 2nd C., intr., *to be pale*.  
 Pār, pārīs, *equal*.  
 Pārens, entis, mas., 3rd D., *the, a, parent*.  
 Pārō, āvī, ātum, āre, 1st C., tr., *to prepare*.  
 Paroxysmus, ī, mas., 2nd D., *the, a, paroxysm*.  
 Pars, partis, fem., 3rd D., *the, a, part*.  
 Partōr, iris, itus sum, īri, depont., 4th C., *to share*.  
 Pārvūlūs, ā, um, *small*.  
 Pātēr, trīs, mas., 3rd D., *the, a, father*.  
 Patōr, passūs sum, pātī, depont., 3rd C., *to suffer*.  
 Pauxillum, ī, neut., 2nd D., *a little portion*.  
 Pectūs, ōrls, neut., 3rd D., *the breast, chest*.  
 Pejōr, ōrls, *worse*; neut. pejus, comp. of malus.  
 Pendcō, pēpendī, pensum, ēre, 2nd C., intr., *to hang*.  
 Penes, *in the power of* (gov. acc.).  
 Per, *during, through* (gov. acc.).  
 Percō, īī, itum, īre, 4th C., intr., *to perish*.  
 Persistō, sttī, stēre, 3rd C., intr., *to continue*.  
 Pēs, pēdis, mas., 3rd D., *the, a, foot*.  
 Pessimūs, ā, um, *worst*.  
 Pharmācopaiā, a, fem., 1st D., *the, a, pharmacopæia*.  
 Phosphas, ātis, mas., 3rd D., *the, a, phosphate*.  
 Phosphōricas, ā, um, *phosphoric*.  
 Pigēt, ūlt, itum est, ēre, impers., 2nd C., *it rains*.  
 Pilā, ā, a, fem., 1st D., *the, a, pill*.  
 Pīpēritā, a, fem., 1st D., *peppermint*.  
 Pīn, icis, fem., 3rd D., *pitch*.  
 Placēt, ūlt (plāctum est), ēre, impers., 2nd C., *it pleases*.  
 Plācūlt, *it was ordered*.  
 Plāo, plūī (plāvi), ūcrē, 3rd C., intr., *to rain*.  
 Plumbum, ī, neut., 2nd D., *lead*.  
 Plūrmūs, ā, um, *most*.  
 Plūs, plūris, *more*.  
 Plūviālis, e, *of rain*.  
 Pōdōphyllum, ī, neut., 2nd D., *podophyllum*.



- Penitēt, ůst, ěre, impers., 2nd C., *it repents (me)*.  
 Pollex, lĕls, mas., 3rd D., *the thumb*.  
 Pondĕrōsŭs, a, um, *heavy*.  
 Pōndus, ěrls, neut., 3rd D., *the, a, weight*.  
 Pōnĕ, *behind* (gov. acc.).  
 Poss-um, pōtui, possĕ, irreg. C., *to be able*.  
 Postĕ, *after* (gov. acc.).  
 Postĕrĕ, *afterwards*.  
 Posterus, ā, um, *behind*; comp. ĳor; superl. trĕmus and tŭmŭs.  
 Pōtassā, a, fem., 1st D., *potash*.  
 Pŕĕtor, lrls, itus sum, ĳri, depont., 4th C., *to obtain possession of*.  
 Pra, *in comparison with* (gov. abl.).  
 Præcipĕ, ěpĕ, ceptum, ěre, 3rd C., tr., *to advise, direct*.  
 Preparĕ, āvi, ātum, āre, 1st C., tr., *to prepare*.  
 Prasum, fŭi, esse, irreg. C., intr., *to be before, preside*.  
 Præter, *beside* (gov. acc.).  
 Prandĕo, prandi (pransus sum), ěre, 2nd C., *to dine*.  
 Prandium, ĳi, neut., 2nd D., *dinner*.  
 Primus, ā, um, *first*.  
 Prĕor, ōrls, neut. prŭs, *first*.  
 Prĕ, *on behalf of, for, before* (gov. abl.).  
 Prŕpĕ, near (gov. acc.); comp. propĕor, oris, neut. prŕpŭs; superl. proximŭs, ā, um.  
 Prorsus, *entirely*.  
 Pŭdĕt, pudĕt or pŭdĕtum est, ěre, impers., 2nd C., intr., *it shames*.  
 Pŭĕr, ĳi, mas., 2nd C., *the, a, boy*.  
 Pulmentum, ĳi, neut., 2nd D., *gruel*.  
 Pulmo, ōnlis, mas, 3rd D., *the, a, lung*.  
 Pulpā, a, fem., 1st D., *the, a, pulp*.  
 Pulvĕs, vĕrls, mas., 3rd D., *the, a, powder*.  
 Pŭrĳficātŭs, ā, um, *purified*.  
 Pŭrĳfico, āvi, ātum, āre, 1st C., tr., *to purify*.  
 Quālis, ě, *what sort?*  
 Quandŕ, *when?*  
 Quantitas, ātis, fem., 3rd D., *the, a, quantity*.  
 Quartŭs, ā, um, *the fourth*.  
 Quāter, *four times*.  
 Quĕ, *and*.  
 Quĕ, quæ, quŕd, *who, which*.

Quicumquē, quæ-, quod-, *whosoever, whatsoever.*

Quidam, quæ-, quid- (quod-), *a certain one.*

Quies, ētis, fem., 5th D., *quiet (sleep).*

Quin, *but that.*

Quinquies, *five times.*

Quisquē, quæ-, quic- (quod-), *each.*

Quisquis, quidquid (quicquid), *whosoever, whatsoever.*

Quivis, quæ-, quid- (quod-), *any you will.*

Rādx, īc̃s, fem., 3rd D., *the, a, root.*

Rāplō, ūi, ptum, ere, 3rd C., tr., *to seize.*

Rārō, *seldom*; imp. rārūs; superl. rārissimē.

Rārūs, ā, um, *rare.*

Rēcplō, cēpi, ceptum, ēre, 3rd C., tr., *to take, receive.*

Rēdēō, īi, itum, ire, 4th C., intr., *to return.*

Rēfērō, tulī (tūli), ātum, ferre, irreg., 3rd C., *to put back.*

Rēgō, rexī, rectum, ēre, 3rd C., tr., *to rule.*

Rējclō, ēcī, ectum, cēre, 3rd C., tr., *to reject.*

Rēpētō, īvī (īi), itum, ērē, 3rd C., tr., *to repeat.*

Rēs, rēi, fem., 5th D., *the, a, thing.*

Rēsini, a, fem., 1st D., *the, a, resin.*

Rētē, īs, neut., 3rd D., *the, a, net.*

Rhizoma, a, fem., 1st D., *the, a, rhizome.*

Rhœas, ādos, 3rd D., *the red poppy.*

Rōsā, a, fem., 1st D., *the, a, rose.*

Rōtundūs, ā, um, *round.*

Rursūs, *again.*

Sacchārum, ī, neut., 2nd D., *sugar.*

Sapē, *often.*

Sal, sālis, mas., 3rd D., *the, a, salt.*

Sālūbēr, brīs, brē, *healthful.*

Sapō, ōnis, mas., 3rd D., *soap.*

Scammonium, ī, neut., 2nd D., *the resin of scammony.*

Sclō, īvi, itum, ire, 4th C., tr., *to know.*

Serūpūlās, ī, mas., 2nd D., *a scruple (20 gr.).*

Sē, sesē, *him-, her-, itself.*

Sēcundum, *in accordance with (gov. acc.).*

Sēd, *but.*

Sēmēl, *once.*

Sēmen, īnis, neut., 3rd D., *the, a, seed.*

Sempēr, *always.*

Sēnex, senis, *an old man.*

Sēnex, senis, adj., *old*.

Sēpārātūm, *separately*.

Sēpōnō, pōsūt, pōstūm, ārē, 3rd C., tr., *to let settle*.

Sēquōr, ērls, secūtus sum, sēquī, depont., 3rd C., *to follow*.

Sesquicarbonas, ātis, mas., 3rd D., *sesquicarbonate*.

Sextus, ā, um, *sixth*.

Si, *if*.

Sīgnō, āvī, ātūm, āre, 1st C., tr., *to sign, describe*.

Similis, ē, *like*; comp. ilior; superl. ilimus.

Simul, *together*.

Sīnē, *without* (gov. abl.).

Singūlus, ā, um, *each, single*.

Sitis, is, acc. sitim, abl. siti, fem., 3rd D., *thirst*.

Sōda, a, fem., 1st D., *soda*.

Sōlēvō, itus sum, ēre, pass., *to be accustomed*.

Sōlus, a, um, *alone*.

Solvō, vī, ūtūm, vēre, 3rd C., tr., *to loosen*.

Somnās, ī, mas., 2nd D., *sleep*.

Spirītūs, ūs, mas., 4th D., *spirit*.

Spissō, āvī, ātūm, āre, 1st C., tr., *to thicken*.

Spontē (defectv.), fem., *by one's own choice*.

Stannum, ī, neut., 2nd D., *tin*.

Stātīm, *immediately*.

Stātūs, ūs, mas., 4th D., *condition, state*.

Sternum, ī, neut., 2nd D., *the breast-bone (chest)*.

Styrax, ācls, mas., 3rd D., *storax*.

Suādēō, suāsī, suāsūm, ēre, 2nd C., *to persuade, urge*.

Sub, *under, up to* (gov. acc. or abl.).

Subinde, *frequently*.

Subsum, no perf., esse, *to be under, near*.

Subtēr, *under, beneath* (gov. acc. or abl.).

Succūs, ī, mas., 2nd D., *juice*.

Sulphas ātis, mas., 3rd D., *the, a, sulphate*.

Sulphūr, ārls, neut., 3rd D., *sulphur*.

Sulphurātūs, ā, um, *sulphurated*.

Summūs, ā, um, *highest, last, greatest, utmost*.

Sumo, psi, ptum, ēre, 3rd C., tr., *to take, procure*.

Sūpellex, llectilis, fem., irreg., *furniture*.

Sūpēr, over (gov. acc. or abl.).

Sūpērlōr, ōris, upper.

Supersum, fui, essē, *to remain, survive*.

Sūpērus, ā, um, *upper*.

Suprā, *above* (gov. acc.).

Suprēmūs, ā, um, *highest, last.*

Sūus, ā, um, *his, her, its, their own.*

Syrūpus, ī, mas., 2nd D., *syrup.*

Tabernā, a, fem., 1st D., *the, a, shop.*

Tābulā, a, fem., 1st D., *the, a, table.*

Tadēt, pertasum est, ēre, impers., 2nd C., *it disgusts, wearies.*

Tālis, ē, *such.*

Tantūs, ā, um, *so much.*

Tartaricus, ā, um, *tartaric.*

Tartas ālis, mas., 3rd D., *tartrate.*

Tempūs, ōris neut., 3rd D., *time (plu. ora, the temples).*

Tēnax, ācis, *tenacious.*

Tēnēr, eā, crum, *tender.*

Tēnis, as *far as, reaching to (gov. abl.).*

Tēr, *thrice.*

Tērō, trīvi, trītum, ēre, 3rd C., tr., *to rub.*

Thōrax, ācis, mas., 3rd D., *the chest.*

Tinctūra, a, fem., 1st D., *the, a, tincture.*

Tōt, *so many.*

Tōtus, ā, um, *the whole.*

Trans, across (gov. acc.).

Transē, ī, itum, ēre, 4th C., *to cross over.*

Trēs, trīum, *three.*

Trechiscus, ī, mas., 2nd D., *a lozenge.*

Tussis, īs, acc. im, abl. ī, fem., 3rd D., *the, a, cough.*

Ubi, *where?*

Ullūs, ā, um, *any.*

Ultērīor, ōris, *further.*

Ultimūs, ā, um, *furthest.*

Ultrā, *beyond (gov. acc.).*

Unā, adv., *together with.*

Unciā, a, fem., 1st D., *an ounce.*

Undē, *whence.*

Unguentum, ī, neut., 2nd D., *the, an, ointment.*

Unūs, ā, um, *one.*

Urgēō, ursī, urgētē, 2nd C., tr., *to press.*

Ūsūs, ūis, mas., 4th D., *use.*

Ut, as, *so that.*

Ūtēr, utrā, utrum, gen. utrūs, *which of two.*

Ūtēr, ěřs, usus sum, ūtī, depont., 3rd C., *to use.*

Valdē, *greatly.*

Valerianas, atls, mas., 3rd D., *valerianate.*

Ve (enclitic), vel, or.

Věná, a, fem., 1st D., *the, a, vein.*

Věnenum, i, neut., 2nd D., *poison.*

Věratřa, a, fem., 1st D., *veratrine.*

Věřer, ěřs, veritus sum, eri, depont., 2nd C., *to fear.*

Věřs, *wards* (gov. acc.).

Věseor, ěřs, vesci, depont., 3rd C., *to eat.*

Věsicatorius, ā, um, *pertaining to a blister.*

Věseř, ěřs, mas., 3rd D., *the evening (e or i, in the evening).*

Věstěr, strā, strum, *year.*

Veterrimūs, ā, um, *oldest.*

Větūs, ěřs, *old.*

Víceš, defect., fem., 3rd D., *time, times.*

Vice, *instead of.*

Videō, vidī, visum, ěre, 2nd C., tr., *to see.*

Videōř, visūs sum, ěři, depont., 2nd C., *to seem.*

Vinarius, ā, um, *of or belonging to wine.*

Vinum, i, neut., 2nd D., *wine.*

Vir, i, mas., 2nd D., *a man.*

Virūs, i, neut, 2nd D., *poison.*

Vis, acc. vim., abl. vi, irreg., fem., *strength.*

Vita, a, fem., 1st D., *life.*

Vivō, vixī, victum, ěre, 3rd C., intr., *to live.*

Vivūs, ā, um, *alive.*

Voco, āvi, ātum, āre, 1st C., tr., *to call.*

Volo, ūi, vellē, irreg., defect., *to be willing, wish.*

Vomitus, ā, um, *producing sickness.*

Vomitūs, ūs, mas., 4th D., *causing vomiting.*

Vulgō, *commonly.*

Vulnus, ěřs, neut., 3rd D., *the, a, wound.*

Zingiběr, ěřs, neut., 3rd D., *ginger.*

## A GLOSSARY OF TERMS USED IN MEDICINE.

(Not including names of drugs or classes of  
drugs.)

- Abscess*, a collection of purulent matter.  
*Acarus*, an ord. of class Arachnida (some parasitic).  
*Acephalocyst*, a headless cyst or hydatid.  
*Acholia*, deficiency or absence of bile.  
*Achromia*, absence of colour.  
*Achromatopsia*, inability to distinguish colour.  
*Acne*, a folliculitis of the skin.  
*Achrochordon*, a cylind. outgrowth of the skin.  
*Achrodynia*, a dermatitis of the hands and feet.  
*Acupuncture*, puncture by needles.  
*Adenalgia*, pain in a gland.  
*Adenitis*, inflammation of a gland.  
*Adenocoele*, tumour connected with a gland.  
*Adenodynia*, pain in a gland.  
*Adenoid*, glandular.  
*Adenoma*, a morbid glandular growth.  
*Adiposis*, accumulation of fat.  
*Adynamia*, depression of the vital powers.  
*Ægophany*, a goat-like bleating of voice.  
*Ætiology*, that which relates to causes of disease.  
*Ageusia*, loss of taste.  
*Agaphia*, vide Aphasia.  
*Agria*, a kind of eczema.  
*Ague*, see Intermittent fever.  
*Aque cake*, enlargement of spleen.  
*Albinism*, whiteness in skin and other tissues.  
*Albuminuria*, disease charactd. by albumin in urino.  
*Algid*, coldness from internal causes.  
*Alopecia*, baldness.  
*Alphosis*, vide Achromia.

*Alveolus*, a merbid growth consisting of spaces bounded by walls of cells or fibre.

*Amaturosis*, blindness without *apparent* morbid condition.

*Amenorrhœa*, abnormal absence of menses.

*Annesia*, absence of memory.

*Amphoric*, hollow metallic respiratory sound.

*Angydatitis*, inflammation of tonsils.

*Anamia*, deficiency of blood or its constituents.

*Anæsthesia*, absence of sensation (tactile).

*Analgesia*, absence of sensation (pain).

*Anasæra*, diffusion of serous fluid into tissues.

*Anchylosis*, stiffness or fixation of joint.

*Anchylostoma*, a genus of nematoid worms.

*Aneurism*, a local dilatation of artery.

*Angiectasia*, hypertrophy of minute vessels of skin.

*Angioleucitis*, inflammation of lymphatics.

*Angina pectoris*, a disease of the chest in paroxysms with anxiety, faintness, &c.

*Anidrosis*, absence of perspiration.

*Anorexia*, want of appetite without disgust.

*Anosmia*, loss of sense of smell.

*Anteflexion*, a bending forward.

*Anteversion*, a displacement forward.

*Anthrax*, syn. Carbuncle, Malignant pustule.

*Anuria*, absence of urination.

*Aprpsia*, indigestion.

*Aphagia*, want of ability to swallow.

*Aphasia*, want of power to express thoughts in words.

*Aphemia*, syn. *Aphasia*.

*Aphonia*, absence of voice.

*Aphthæ*, fungus infesting epithelium of mouth.

*Aplastic*, incapable of forming tissue.

*Apneumatosis*, syn. *Atelectasis*.

*Apnoea*, cessation of breathing.

*Apoplexy*, sudden coma due to morbid brain.

*Pyrexia*, absense of, or intervals in, intermittent fever.

*Arachnitis*, inflammation of arachnoid membrane.

*Arcus senilis*, opacity of pupil in the aged.

*Ardor*, heat sensation.

*Argyria*, stains on skin from silver (intern.).

*Arteritis*, inflammation of arteries.

*Arthralgia*, pain in joint.

*Arthritis*, inflammation in joint.

*Arthrodynia*, vide *Arthralgia*.

*Articular*, pertaining to a joint.

*Ascarides*, thread or seat worms (genus *Oxyuris*).

*Ascites*, accumulation of fluid in peritoneum.

*Asphyxia*, deprivation of respiration.

*Asthenia*, want of strength.

*Asthenopia*, weakness of sight.

*Asthma*, a disease with apnea from spasmodic contraction of bronch occurring at intervals.

*Astigmatism*, irregular focussing power of eye.

*Ataetism*, inheritance from grandparent.

*Ataxia*, irregularity of co-ordinated muscl. movements.

*Atelectasis*, want of expansion of lung cavities at birth.

*Atheroma*, a disease of arteries.

*Atony*, want of tone.

*Atresia*, absence of opening or passage.

*Atrophy*, wasting from want of nutrition.

*Aura*, a sensation preceding epilepsy or hysteria.

*Auscultation*, examination by listening.

*Autophonia*, self-auscultation.

*Autopsy*, vide *Necropsy*.

*Azoduria*, excess of urea in urine without pyrexia.

*Bacillus*, a name given to filiform bacteria.

*Bacteria*, Minute rod-like algae.

*Balanitis*, inflammation of opposing surfaces of glans and prepuce.

*Balneology*, science of baths and washing.

*Bassett's disease*, syn. *Exophthalmic goitre*.

*Bell sound*, auscultatory sound in pneumothorax.

*Bell's paralysis*, paralysis of facial nerve.

*Bilharzia*, a genus of flukes.

*Blistin*, a blister.

*Bleb*, a large vesicle with serous fluid.

*Blennorrhoea*, Excessive flow of mucus.

*Blipharitis*, inflammation of eyelids.

*Blipharospasm*, spasmodic movements of eyelids.

*Blue disease*, vide *Cyanosis*.

*Borborygmi*, rumbling sounds in abdomen.

*Bothrioccephalus*, a genus of entozoa.

*Bots*, larva of gadflies.

*Bruidism*, syn. *Hypnotism*.

*Break-bone fever*, syn. *Dengue*.



- Bromism*, morbid effect from taking bromides.  
*Bromidrosis*, fetid perspiration.  
*Bronchitis*, inflammation of the bronchid.  
*Bronchocele*, syn. Goitre.  
*Bronchophony*, normal resonance of voice over bronchid.  
*Bubo*, swelling of lymphatic gland in groin.  
*Bulimia*, excessive appetite.  
*Bulla*, a bleb, q.v.  
*Bursitis*, inflammation of the bursæ.  
*Cachexia*, chronic ill-health with abnormal blood.  
*Cacoplasmic*, unorganizable products of inflammation.  
*Cadaveric*, resembling a dead body.  
*Calculus*, concretion in duct of gland.  
*Calvities*, baldness.  
*Cancer*, a dis. of epithl. and connective tissue.  
*Cancrum oris*, phagedenic ulceration of cheek and lip.  
*Cavities*, greyiness or whiteness of hair.  
*Carbuncle*, syn. Anthrax, malignant pustule.  
*Carcinoma*, syn. Cancer.  
*Cardialgia*, syn. Heartburn.  
*Cardiograph*, instrument registering heart movements.  
*Carditis*, inflammation of heart substance.  
*Carnification*, lung tissue becoming flesh-like.  
*Carpholegy* or -*ogy*, picking movements of hands.  
*Caseous*, resembling cheese.  
*Casts*, hollow moulds thrown off.  
*Catalepsy*, a nervous disease.  
*Cataptasm*, syn. Poultice.  
*Cataract*, an opacity of lens of eye.  
*Catarrh*, an inflamtn. of muc. membrane.  
*Cell*, a contractile mass of protoplasm.  
*Cellulitis*, inflamtn. of loose connectv. tissue.  
*Cephalalgia*, pain in the head.  
*Cephalhematoma*, an effusion of blood on head.  
*Ceratitis*, syn. Keratitis.  
*Cerebritis*, inflamtn. of brain substance.  
*Chalazion*, small encysted tumour of eyelids.  
*Chalk stones*, gouty deposits of sodium urate.  
*Chancre*, small venereal swellings.  
*Chaps*, syn. Rhagades, fissures of the skin.  
*Cheloids*, a tumour of skin.  
*Chemosis*, a swollen condition of the conjunctiva.

- Chigoe*, a parasitic burrowing flea.  
*Chilblain*, inflamtn. of skin from cold.  
*Chiragra*, gout in the hand.  
*Chloasma*, a pigmentary discolortn. of skin.  
*Chlorosis*, a variety of anemia.  
*Cholelithiasis*, the condition of system with gall-stones.  
*Cholera*, an infectious disease with vomiting, purging, prostration, collapse, &c.  
*Cholesteatoma*, a tumour consist. of cholesteroline.  
*Chordee*, painful erection of penis in gonorrhea.  
*Chorea*, a nerv. dis. with clonic movements.  
*Choroiditis*, inflamtn. of choroid.  
*Chromidrosis*, coloured perspiration.  
*Chronic*, slow and prolonged (disease).  
*Chyluria*, a disease with milky urine.  
*Cicatrizatio*n, scar formation.  
*Cirrhosis*, an inflam. dis. of connectv., interstit., or supportg. tissues of organs.  
*Clavus hystericus*, a pain in the head.  
*Clonus*, a disease of the spinal cord.  
*Coagulum*, syn. a clot.  
*Coarctation*, a narrowing of a tube.  
*Colic*, pain of a spasmodic character.  
*Collapse*, a state of nervous prostration.  
*Colliquative*, copious (sweats and diarrhea).  
*Colloid*, like glue or jelly.  
*Colitis*, syn. Colonitis, colo-enteritis, inflamtn. of colon.  
*Coma*, a condition of profound insensibility.  
*Coma vigil*, sleeplessness with partial unconsciousness.  
*Comedones*, sebaceous and epithel. cylinders in hair follicles of skin ("grubs").  
*Concussion*, a condition resulting from shaking or shock.  
*Condyloma*, excrescences about anus and genitals.  
*Confluent*, tending to run together.  
*Congenital*, existing at birth.  
*Congestion*, accumulation.  
*Conjunctivitis*, inflamtn. of conjunctiva.  
*Contra-indication*, indication against.  
*Contusion*, bruise with breach of surface.  
*Convulsions*, purposeless muscular contractions.  
*Cophosis*, deafness.  
*Corneitis*, inflammation of the cornea.  
*Coryza*, Nasal Catarrh.

*Coralgia*, pain in the hip-joint.  
*Crimp*, a variety of tonic spasm.  
*Craniodabes*, spots of thinness in the skull.  
*Cretinism*, a kind of idioey.  
*Crusta lactea*, an eczema of face and head in infants.  
*Cutis asserind*, goose-skin.  
*Cyanosis*, blueness of skin.  
*Cynanche*, an inflammatory condition of throat.  
*Cyrtometer*, instrument of chest measurement.  
*Cysticercus*, a species of bladder-worm.  
*Cystitis*, inflammation of the bladder.  
*Cyst*, a closed cavity containing fluid.

*Dactylitis*, inflammation of the finger.  
*Decubitus*, the lying posture.  
*Defervescence*, the decline of fever.  
*Dementia*, a deficiency of intellect.  
*Demodex*, a genus of acarine parasites (pimple mites)  
*Dengue*, an infectious eruptive fever.  
*Dermatalgia*, pain in the skin.  
*Dermatitis*, inflamtn. of the skin.  
*Dermatolysis*, looseness of the skin.  
*Desquamation*, the shedding of epithelium.  
*Diabetes*, a dis. with sugar in urine.  
*Diarrhœa*, excessive discharge from bowels without tenesmus.  
*Dialthesis*, a morbid predisposition to any disease.  
*Dicrotism*, the second great wave of the pulse.  
*Diphtheria*, a specific, contagious, general disease affecting the parts about the throat.  
*Diplopia*, double vision.  
*Dipsomania*, a craving for alcohol, generally periodic.  
*Discrete*, separate.  
*Distoma*, syn. Flukes, a genus of trematode parasites.  
*Dochmius*, a genus of nematoid worms.  
*Dothinenenteritis*, enteritis with enlargement of follicles.  
*Dracunculus*, the guinea-worm.  
*Dropsy*, accumulation of serous fluid in cellular tissue.  
*Dumbness*, incapability of articulating sounds.  
*Dysæsthesia*, impairment of senses (particularly of touch).  
*Dyscrasia*, a morbid state of blood.  
*Dysentery*, a febrile disease with inflamtn. of glands of large intestine.  
*Dysidrosis*, a disorder of the sweat-follicles.

*Dysmenorrhœa*, painful and difficult menstruation.

*Dyspepsia*, syn. Indigestion.

*Dysphagia*, difficulty in swallowing.

*Dysphonia*, difficulty in producing sounds of the voice.

*Dyspnœa*, difficulty of breathing.

*Eburnation*, an ivory-like state of bone.

*Echymosis*, extravasation of blood into cellular tissue.

*Echinorhynchus*, a genus of thornheaded worms.

*Eclampsia*, syn. Convulsions.

*Ectasy*, certain morbid states of the nervous system.

*Ectropion (ium)*, an inverted condition of eyelid.

*Eczema*, an inflammation of the skin.

*Effusion*, escape of fluid into tissues.

*Elephantiasis*, a dis. with inflammatn. and hypertrophy of skin and areolar tissue.

*Embolism*, arrest of solid bodies in arteries or capillaries.

*Emesis*, syn. Vomiting.

*Emphysema*, distention with air or gas.

*Empyothorax*, bending forward of body from tonic spasms.

*Empyema*, an inflammatory effusion into cavity of pleura.

*Encephalitis*, inflammation of brain and its membranes.

*Encephalocèle*, Protrusion of brain substance through an opening in skull.

*Encephaloid*, cancer, resembling brain tissue.

*Enchondroma*, a new growth consisting of cartilage.

*Endarteritis*, inflammation of internal coat of artery.

*Endemic*, prevailing in any locality.

*Endemic*, the method of introducing through skin.

*Endocarditis*, inflammatn. of lining membrane of heart.

*Endophtitis*, inflammatn. of muc. memb. of stomach.

*Endometritis*, inflammatn. of lining of womb.

*Endophtericaritis*, simultaneous inflammatn. of endocardium and pericardium.

*Engorgement*, overloading of vessels.

*Enteralgia*, syn. Colic.

*Enteric fever*, syn. Typhoid fever.

*Enteritis*, inflammatn. of intestines.

*Enterocèle*, hernia inclosing portion of bowel.

*Entophyte*, a plant parasitic in the body.

*Entozoa*, animal parasites in the body.

*Ectropion*, a dis. with inversion of eyelid.

*Enuresis*, incontinence of urine.

- Ephelis*, discoloration of skin from light or heat.  
*Ephidrosis*, a state of sweating.  
*Epidemic*, prevalent; also contagious.  
*Epidermophyton*, the epiphyte of *Phytosis versicolor*.  
*Epididymitis*, inflamtn. of the epididymus.  
*Epigastric*, the upper and central region of abdomen.  
*Epilepsy*, an apyretic nervous affection with convulsions.  
*Epiphora*, a persistent flow of tears.  
*Epiphyta*, plant-like organisms upon the skin or muc. membr.  
*Epiloitis*, inflamtn. of the great omentum.  
*Episcleritis*, inflamtn. tissue between sclerotic and conjunctiva.  
*Episyalias*, malformtn. of penis; urethra open on upper surfc.  
*Epistaxis*, bleeding from the nose.  
*Episthotonos*, syn. *Emprosthotonos*.  
*Epithelioma*, a variety of cancer.  
*Epithem*, any outward application.  
*Epulis*, tumour of the Alveolar processes.  
*Equinia*, syn. glanders.  
*Erethism*, excited condition of an organ.  
*Ergotism*, a disease due to ergot.  
*Erosion*, Superficial destruction of tissue.  
*Erotomania*, syn. *Nymphomania*.  
*Erratic*, wandering.  
*Eruetation*, a sudden escape of gas from stomach.  
*Erysipelas*, indefinitely spreading inflamtn. of skin.  
*Erythema*, a non-infective inflamtn. of skin surface.  
*Etiology*, the science of the causes of disease.  
*Eustrongylus gigas*, vide *Sclerostoma*.  
*Exacerbation*, increase in severity of symptoms.  
*Exanthema*, certain acute, specific, infectious skin eruptns.  
*Excoriation*, superf. destructn. of skin or muc. memb.  
*Exfoliation*, separation of dead layers from bone or cartilage.  
*Exomphalos*, umbilical hernia.  
*Exophthalmic goitre*, dis. of thyroid with anemia, palpitation, dyspnoea, protrusion of eyeball.  
*Exostosis*, Bony outgrowth from Skeleton.  
*Expectoration*, syn. *Sputum*, *Phlegm*.  
*Exsanguine*, deprived of blood.  
*Extravasation*, escape of fluid from vessels into tissues.  
*Extrorversion*, turning inside out.  
*Exudation*, passage through bld. vessels into tissues; also matter so passing.

*Kercy*, syn. Glanders.

*Lasciola*, genus of trematode parasites.

*Latuity*, mental imbecility.

*Levus*, a fungoid dis. of scalp (or skin).

*Levricula*, Simple fever of a few days' duration.

*Fibrillation*, a localised quivering (of muscles).

*Fibroma*, a form of tumour comp. of fibrous tissue.

*Ficus Unguim*, a dis. of posterior wall of the nail.

*Filaria*, a genus of nematoid worms.

*Fish-skin disease*, syn. Ichthyosis.

*Fistula*, a canal or narrow track.

*Flatulence*, undue gas in alimentary tract.

*Flooding*, excessive bleeding from womb.

*Fluor (Flux)*, an excessive discharge from a muc. surf. through the natural passage.

*Fomites*, substances capable of harbouring contagion.

*Formication*, a sensation as of creeping in the skin.

*Fragilitas ossium*, Fragility of bones.

*Furfur*, A branlike desquamation of skin.

*Furunculus*, a boil.

*Galactidrosis*, milky perspiration.

*Galactorrhœa*, excessive flow of milk.

*Ganglion*, a tumour in sheath of a tendon.

*Gangrene*, mortification. Death of tissue.

*Gastralgia*, pain in the stomach.

*Gastric fever*, fever with prominent gastric conditions.

*Gastritis*, inflamtn. of stomach.

*Gastrodynia*, a painful affection of stomach.

*Gastroorrhœa*, excessive mucous flow from stomach lining.

*Gingivitis*, inflamtn. of gums.

*Glanders*, a contagious febrile disease in horse, mule, ass, communicable to man.

*Glaucoma*, high pressure within the eye-ball.

*Gleet*, a milky, viscid, scant urethral discharge.

*Globus hystericus*, hysterical feeling as of ball in the throat.

*Glossalgia*, pain in the tongue.

*Glossitis*, inflamtn. of the tongue.

*Glycosuria*, a sugary condition of urine.

*Goutre*, a dis. with enlargement of thyroid.

*Gonagra*, gout in the knee.

*Gonarthritis*, inflamtn. in knee joint.

*Gonorrhœa*, A contagious purulent inflamtn. of urethra, &c.

- Gout*, A dls. due to excess of uric acid.  
*Grand mal* (fr.), severe convulsive epilepsy.  
*Glandular liver*, syn. cirrhosis of liver.  
*Gravel*, ordinary catarrh.  
*Gravel*, gritty condition of urine.  
*Graves' disease*, syn. Exophthalmic goitre.  
*Green sickness*, syn. Chlorosis.  
*Grutum*, small, white, hard globules on epidermis.  
*Guinea worm*, syn. Dracunculus. A nematoid parasite.  
*Gumma*, a growth occurring in syphills.  
*Gutta rosacea*, syn. Acne rosacea.  
*Gynaecology*, study of the diseases of women.
- Hæmatemesis*, vomiting of blood.  
*Hæmathridrosis*, bloody sweat.  
*Hæmatinuria*, a paroxysmal dis. with bloody urine.  
*Hæmatobium*, syn. Hematozoon.  
*Hæmatocele*, a bloody tumour in sac of tunica vaginalis, or in cyst connect. with testicle.  
*Hæmatoma*, a form of bloody tumour.  
*Hæmato-pericardium*, extravsn. of blood into pericardial cavity.  
*Hæmato-thorax*, extravsn. of blood into pleural cavity.  
*Hæmatozoa*, animal parasites living in the blood.  
*Hæmaturia*, bloody state of urine.  
*Hæmic*, relating to the blood.  
*Hæmophilia*, a bleeding diathesis.  
*Hæmoptysis*, pulmonary or bronchial hæmorrhage.  
*Hæmorrhage*, escape of blood from the body.  
*Hæmorrhagic*, associated with hæmorrhage.  
*Hæmorrhoids*, varicose hæmorrhoidal veins (Piles).  
*Hallucination*, a false perception of an organ of sense without external cause.
- Hay fever*, a catarrh of muc. memb. of nose, head, &c.  
*Heart-burn*, a feeling of heat about the stomach.  
*Heat-stroke*, syn. Sunstroke.  
*Hæmiænanæsthesia*, paralysis of sensation on one side of body.  
*Hæmiænalgesia*, insensibility to pain on one side of body.  
*Hæmicrania*, pain limited to one side of head.  
*Hæmiopia (opsia)*, vision in which only half of object is seen.  
*Hæmioplegia*, paralysis of motion on one side of body.  
*Hæpatalgia*, a neuralgia referred to the liver.  
*Hepatitis*, inflamtn. of the liver.

*Hepatocoele*, hernia of the liver.

*Hernia*, protrusion of a viscus from its proper cavity.

*Herpes*, a skin disease with eruption of vesicles.

*Heterologous*, morbid.

*Heterologous*, misplaced.

*Hippuric*, condition of urine with excess of hippuric acid.

*Hodgkin's disease*, syn. *Symphadenoma*.

*Homologous*, new normal (tissue).

*Hordeolum*, syn. *Stye*.

*Horripilation*, sensation of bristling of the hair.

*Hydatids*, the larvæ of *Tenia echinococcus*.

*Hydræmia*, a watery condition of blood.

*Hydrarthrosis*, effusion of serous fluid into a joint.

*Hydroadenitis*, a dis. of the sweat glands.

*Hydrocardia*, an effusion of serous fluid into pericard. sac.

*Hydrocœle*, a collection of serous fluid in connect. with testicle or spermatic cord.

*Hydrocephalus chron.*, a collection of serous fluid within the lateral and third ventricles of brain.

*Hydrometra*, dropsy of the womb.

*Hydromphrosis*, dropsy of the kidney.

*Hydropericardium*, collection of fluid in pericardium.

*Hydrophobia*, a specif. dis. due to inoculation from a rabid animal.

*Hydrothorax*, dropsy of the pleura.

*Hydruria*, profuse flow of watery urine.

*Hypæmia*, local anæmia.

*Hypæsthesia*, diminished sensibility of a part.

*Hyperæmia*, excess of blood in a part.

*Hyperæsthesia*, increased sensibility of a part.

*Hyperalgæsia*, undue sensibility to pain.

*Hyperidrosis*, excessive perspiration.

*Hyperinosis*, excess of blood fibrin.

*Hypermetropia*, a defect of eye—too long focus.

*Hyperplasia*, excessive growth of normal tissue elements.

*Hyperpyrexia*, syn. *Hypermetropia*.

*Hyperpyrexia*, excessive pyrexia.

*Hypertrophy*, excessive growth.

*Hypinosis*, deficiency of blood fibrin.

*Hypnotism*, a kind of mesmerism.

*Hyperchondriac*, the upper (region) of abdomen on either side of the epigastrium.

*Hypochoondriasis*, a mental unsoundness resembling melancholia.



*Hypogastric*, the (region) above the pubic below the umbilical.  
*Hypospadias*, malformation of penis, orifice underneath.

*Hypostasis*, an overfulness of blood-vessels.

*Hysteralgia*, pain in the womb.

*Hysteria*, a nerv. dis. chiefly affecting females.

*Hysteritis*, inflamn. of the womb.

*Hystero-epilepsy*, a severe form of hysteria.

*Icterus*, syn. Jaundice.

*Ictus solis*, syn. Sunstroke.

*Idiocy*, mental deficiency in early life.

*Idiopathic*, a morbid condition arising primarily.

*Idiosyncrasy*, constitutional peculiarity in any direction.

*Idrosis*, syn. Hyperidrosis.

*Ileus*, syn. for intestinal obstruction.

*Illusion*, a false perception of the senses.

*Impetigo*, a form of skin eruption.

*Impotency*, inability for sexual intercourse.

*Incurvation*, hernia irreducible because of obstruction.

*Incontinence*, inability to retain (urine, feces).

*Incubation*, the development of disease.

*Induration*, hardening.

*Infarct*, a haemorrhagic infiltration

*Infiltration*, the diffusion of morbid matters into tissue.

*Influenza*, epidemic catarrhal fever.

*Insensibility*, loss of consciousness or sensation.

*Insomnia*, sleeplessness.

*Instillation*, application by drops.

*Insufflation*, snuffing or blowing up.

*Intermittent*, malarial fever with sudden and regular rise and fall of temperature.

*Intertrigo*, inflamn. occurring in folds of skin.

*Intussusception*, passage of one portion of bowel into another.

*Inunction*, rubbing into skin.

*Inagination*, syn. Intus-susception.

*Iodism*, the effect produced by iodides in excess.

*Iritis*, inflamn. of the iris.

*Irregular*, not running the usual course (dis.).

*Irrigation*, application by drops falling on one spot.

*Irritability*, undue excitement (of an organ).

*Ischamia*, deficiency of blood in a part.

*Ischalgia*, syn. Sciatica.

*Ischuria*, arrested secretn. of urine.

*Jactation* or *Jactitation*, tossing of the body.  
*Jaundice*, yellowness from bile impregnation.  
*Jigger*, syn. Chigoe.

*Keratitis*, inflamtn. of the cornea.  
*Kerion*, a pustular folliculitis of scalp.  
*Kiestine*, a body allied to casein.  
*Kinaesthesia*, the sense of movement.  
*King's evil*, syn. Scrofula.  
*Kleptomania*, insane impulse to steal.  
*Kyphosis*, angular deformity of spine.

*Lagophthalmos*, inability to close eye or eyes.  
*Lardaceous*, syn. albuminoid (disease).  
*Larvalis*, a mark of incrustation in porrigo, &c.  
*Larvated*, marked or concealed (diseases).  
*Laryngismus stridulus*, inspiration with crowing.  
*Laryngitis*, inflamtn. of larynx.  
*Laryngoscope*, instrument for viewing larynx.  
*Lentigo*, syn. Freckle.  
*Leprosy*, syn. Elephantiasis.  
*Leptomenigitis*, inflamtn. of the pia mater.  
*Leptothrix*, bacilli found in mouth.  
*Lesion*, an organic change of a morbid character.  
*Leucocythamia*, dis. with excess of white bld.-corpuscles.  
*Leucocytosis*, state of moderately increased white bld.-corpuscles.

*Leucoderma*, colourless integument.  
*Leucoma*, a white opacity of cornea.  
*Leucopathia*, syn. Albinism.  
*Leucorrhœa*, a non-hæmorrhagic discharge from fem. genital fissure.

*Lichen*, a disease of the skin.  
*Lienteric*, diarrhea with much undigested food in stools.  
*Lipoma*, a fatty tumour.  
*Lithiasis*, uric acid diathesis.  
*Lithuria*, a condition of uric acid or urates in urine.  
*Lobular*, concerning a lobe.  
*Locomotor ataxy*, partial loss of power in spinal cord.  
*Lordosis*, abnormal forward spine curvature.  
*Lumbago*, muscular rheumatism in lumbar region.  
*Lupus erythematosus*, a chronic hyperæmia of skin.

*Lupus vulgaris*, a chron. non-contg. skin dis. due to infiltration.

*Lymphadenitis*, inflamtn. of lymphatic glands.

*Lymphadenoma*, a dis. with enlarged lymphatic glands; spleen, &c.

*Lymphangitis*, inflamtn. of lymphatic vessels.

*Lymphangiectasis*, varicose dilatn. of lymphatic vessels.

*Lymphoma*, syn. Lymphadenoma.

*Lymphorrhagia*, an abnormal discharge of lymph or chyle.

*Macula*, a permanently discoloured spot on skin.

*Malacosis*, morbid softening.

*Malacosteon*, dis. with softening of bone.

*Malaise*, feeling of general illness.

*Malaria*, poison generated in stagnant unused soil.

*Malignant*, tending to a fatal issue.

*Marasmus*, general wasting.

*Marsh fever*, intermittent fever.

*Massage*, syn. Shampooing.

*Mastalgia*,

*Mastodynia*, { pain in mammary gland.

*Masturbation*, sexual orgasm produced by unnatural means.

*Measles*, an infect. specfc. fever with rash.

*Mediastinitis*, inflamtn. of mediastinum (chest).

*Megrim*, a form of nerv. headache.

*Melana*, evacuations of altered blood from bowels.

*Melanania*, a morbidity of blood (cont. dark particles).

*Melancholia*, insanity with great depression.

*Melanoma*, any morbid growth cont. black pigment.

*Melanopathia*, excess of black pigment in skin.

*Melanosia*, conditn. of system with black pigment.

*Melasma*, excess of pigment in skin.

*Mellituria*, syn. Sugary wine.

*Menidrosis*, vicarious menstruation by the skin.

*Meningo-cerebritis*, inflamtn. of pia mater implicating subjacent cortical substance.

*Meningo-myelitis*, inflamtn. of spinal meninges implicating spinal cord.

*Menopause*, "change of life" in female.

*Menorrhagia*, excessive menstruation.

*Metrorrhia*, bleeding from womb (not menstrual).

*Mentagra*, affections of the chin.

*Mentagrophyton*, fungus-plant of sycosis.

*Metamorphosis*, change of higher tissue into lower.

*Metastasis*, -ic, change of position of disease.

*Metralgia*, pain in the womb.

*Metritis*, inflamtn. of the womb.

*Miasm*, the malarial poison.

*Microcœci*, spherical bacteria.

*Microsporon*, fungus-plant of Phytosis.

*Micturatio*, passing of urine.

*Migraine*, syn. Megrim.

*Miliaria*, a vesicular eruptn. of skin.

*Milium*, syn. Gratum

*Mimosis*, phenomena of one dis. imitating another.

*Miscarriage*, a premature labour.

*Mœlographia*, syn. Writer's cramp.

*Mollities ossium*, condition of sys. with deossified bones.

*Molluscum*, term applied to soft tumours of skin.

*Morbid*, diseased.

*Morbidity*, diseased.

*Morbific*, causing disease.

*Morbilli*, syn. Measles.

*Morphœa*, a circumscribed form of scleroderma.

*Mucoid degeneration*, degenta. producing mucus.

*Moxa*, counter irritation produced by burns.

*Multilocular*, consisting of numerous small spaces.

*Mumps*, an acute infect. febr. dis. with swelling of salivary glands.

*Musæ volitantes*, appearance of black spots, &c., on field of vision.

*Myalgia*, pain in a muscle.

*Myædema*, syn. for Fungus-foot of India.

*Myodermæ*, certain vegetable organisms infesting the skin.

*Myriasis*, excessive dilatation of pupil.

*Myelitis*, inflamtn. of spinal cord.

*Myeloma*, sarcoma with myeloid cells.

*Myocarditis*, inflamtn. of walls of heart.

*Myopia*, condition of eye; lens with too short focus.

*Myosis*, excessive contractn. of pupil.

*Myositis*, inflamtn. of a muscle.

*Myædema*, a dis. with tissues invaded by mucous yielding dropsical swelling.

*Necro-brosis*, molecular death of a tissue without loss of continuity.

- Necropsy*, the examination of the body after death.
- Necrosis*, death of a portion of tissue (bone).
- Neoplasms*, new growths.
- Nephralgia*, an affection of the nerves of kidney.
- Nephritic*, appertaining to the kidneys.
- Nephritis*, inflamtn. of the kidney.
- Nevralgia*, a dis. of sensory nerves, with paroxysmal pain.
- Neuritis*, inflamtn. of a nerve.
- Neuroma*, a tumour connect-d with a nerve.
- Neuroses*, functional affections of nervous system.
- Nictitation* (or *Nictation*), involuntary winking.
- Nigrities*, blackness of the skin.
- Nictambulation*, sleep walking.
- Nodule*, a circumscribed swelling in bone (usually syphilitic).
- Noma*, syn. Cancerum oris.
- Nosophyla*, a group of cutaneous affectns. due to fungi.
- Nostalgya*, a melancholia with desire to return home.
- Nystalopia*, night blindness.
- Nymphomania*, mental derangement in women (irritable sexual desire).
- Nystagmus*, an involuntary movement of the eyeball.
- Edema*, a dropsical effusion of cellular tissue.
- Æstrus*, a genus of dipterous parasitic insects (gadflies).
- Cūlum albicans*, a vegetable parasite associated with thrush.
- Oinomania*, syn. dipsomania.
- Oligæmia*, deficiency of blood.
- Onagra*, gout in the shoulder.
- Onanism*, syn. Masturbation.
- Onychia*, an inflamtn. of matrix of nail.
- Onychogryphosis*, curvature of the nails.
- Onychomycosis*, parasitic disease of the nail.
- Ophiæsis*, aleope-cia arcata, assuming a serpentine form.
- Ophthalmia*, inflamtn. of superficial parts of eye.
- Ophthalmitis*, inflamtn. of whole of eye.
- Opisthot nos*, tetanic spasm, with backward curvature.
- Orchitis*, inflamtn. of testicle.
- Orthopnea*, difficult breathing, causing inability to lie down.
- Orthotonos*, tetanic spasm, causing rigid extension.
- Osmidrosis*, a condition of perspiration with foetid smell.
- Osteitis*, inflamtn. of bone.
- Osteocopic*, aching (pains in bones).

*Osteo-malacia*, syn. *Mollities ossium*.

*Osteo-mycelitis*, inflamtn. of medulla of bone.

*Osteo-sarcoma*, sarcomatous growth connected with bone.

*Ostalgia*, pain in the ear.

*Otitis*, inflamtn. of the ear.

*Otorrhœa*, discharge from the ear.

*Oxyuris*, a genus of nematoid parasites (threadworms).

*Ozæna*, chronic fetid discharge from nose.

*Pachymeningitis*, syn. Inflamtn. of dura mata.

*Pallor*, deficiency of healthy colour.

*Palsy*, syn. Motor paralysis.

*Palsy, shaking*, syn. Paralysis agitans.

*Paludal*,

*Palustral*, } pertaining to a marsh.

*Papilloma*, a tumour of hypertrophied papillæ.

*Papula*, a pimple.

*Paracentesis*, the tapping of a cavity.

*Paræsthesia*, sensations due to excess or diminution of feeling, as tingling, itching, &c.

*Paralysis*, syn. Palsy, Paresis; loss of power of voluntary existing muscle.

*Paralysis agitans*, a paralysis of old age, with trembling of limbs.

*Paramenia*, irregular menses.

*Paraphimosis*, conditn. of penis with prepuce drawn back, immovable and strangulating parts in front.

*Parasites*, organisms deriving nutriment from other living organisms.

*Paræchymatous*, morbid processes affecting the protoplasmic or active elements of tissue.

*Paresis*, partial paralysis of motion.

*Paronychia*, inflamtn. close to a nail; a whitlow.

*Paroxysm*, periodic attacks in certain diseases

*Pathogenic*, relating to the causation of disease.

*Pathognomic*, relating to the symptoms characteristic of disease.

*Pathology*, the science of disease.

*Pectoriloquy*, sounds of auscultation heard as coming from chest.

*Pediculi*, lice.

*Pellagra*, erythrema appearing on parts of skin exposed to light.

*Pedodera*, a genus of free "nematoids."

*Pelvic cellulitis*, inflmtn. of cellul. tissue among pelvic organs.

*Pelvic hamatocèle*, a bloody tumour within the pelvis.

*Pelvic peritonitis*, inflmtn. of peritoneum, portion around pelv. organs.

*Pemphigus*, syn. *Pempholix*, a skin disease.

*Pentastoma*, a genus of entozoa.

*Pericæcal abscess*, abscess in cellul. tissue around cæcum.

*Pericarditis*, inflmtn. of pericardium.

*Perihepatitis*, inflmtn. of capsule of liver.

*Perinephritis*, inflmtn. of cellul. tissue around kidney.

*Periproctitis*, inflmtn. of cellul. tissue around anus.

*Peritonitis*, inflmtn. of peritoneum.

*Perityphilitis*, inflmtn. of connectv. tissue around cæcum.

*Pertussis*, syn. Whooping cough.

*Pestis*, syn. Plague.

*Petechiæ*, small red spots on skin.

*Phagendana*, an ulcer rapidly disintegrating surrounding tissues.

*Phimosi*s, condition when prepuce cannot be retracted.

*Phlebeclasia*, a spreading or increase of minute veins of skin of muc. surfaces.

*Phlebitis*, inflmtn. of veins.

*Phlebolith*, a concretion within a vein.

*Phlegmaria dolens*, syn. white leg.

*Phlyctæna*, a small vesicle contg. fluid.

*Phlyctis*, a (larger) vesicle filled with ser. fluid.

*Phlyzacum*, acute pustules with inflamed base.

*Photophobia*, intolerance of light.

*Photopsia*, sensation (subjectv.) of flashes of light.

*Phthiriasis*, skin disease caused by lice.

*Phthisis*, pulmonary consumption.

*Physometra*, conditn. with collection of gas in uterus.

*Phytosis*, plant formation in skin.

*Picarhæmia*, condition of blood contg. free fat.

*Pica*, craving for unsuitable articles of diet.

*Pityriasis*, thick and adhesive (phlegm).

*Placentalitis*, inflmtn. of placenta.

*Plague*, a specific fever, attended by bubo and sometimes carbuncle.

*Plethora*, overdistention with blood.

*Pleurisy*, inflmtn. of pleura.

- Pleurodynia*, syn. Intercoastal myalgia, muscul. rheumtism. affectg. chest-wall.
- Pleuro-pneumonia*, inflamtn. of pleura with inflam. of lungs.
- Pleurorhotosis*, tetanic spasm, body bent to one side.
- Plica polonica*, feeling of hair arising from neglect.
- Pneumatocèle*, hernia of the lung.
- Pneumonia*, inflamtn. of the substance of the lungs.
- Pneumo-pericardium*, collection of gas in pericardium.
- Podagra*, gout in the foot.
- Podalgia*, pain in the foot.
- Polydipsia*, syn. Excessive thirst.
- Polypus*, any simple pedunculated growth growing upon a mucous surface.
- Polysarcia*, syn. Obesity.
- Polyuria*, maladies character'd. by thirst and excessive watery urine.
- Pompholyx*, syn. Pemphigus.
- Porriço*, eruptions on scalp and face.
- Præsystolic*, antecedent to the ventricular systole.
- Presbyopia*, impaired vision (of old age), focus too long.
- Priapism*, erection of the penis unnatural or too long continued.
- Prickly heat*, an eruption of small pimples, with heat and itching.
- Proctidia*, a falling down of certain organs.
- Proctitis*, inflamtn. of the anus or rectum.
- Prodromata*, syn. for Premonitory symptoms.
- Prolapsus*, a (serious) falling down of an organ.
- Prophylactic*, relating to prevention of disease.
- Prostatitis*, inflamtn. of the prostate gland.
- Prurigo*, itching of the skin.
- Pruritus*, perverted sensation of the skin, with itching.
- Pseudocystis*, spurious pregnancy.
- Psoas abscess*, a spinal abscess associated with psoas magnus muscle.
- Psoriasis*, syn. Lepra of Willans.
- Psychosis*, v. Sycosis.
- Psudracium*, a small non-inflamty. pustule.
- Ptosis*, drooping of, with inability to raise, upper eyelid.
- Ptyalism*, excessive flow of saliva.
- Pulmonary Apoplexy*, a certain form of hemorrhage into lungs.
- Purpura*, cutaneous hemorrhages.



*Pustule*, a vesicle of the skin containing pus.

*Pyæmia*, blood poisoning by a morbid material.

*Pyelitis*, inflmtn. of the pelvis of kidney.

*Pyelophlebitis*, inflmtn. of branches of portal vein.

*Pyonephritis*, inflmtn. of kidney followed by formation of abscess.

*Pyopneumothorax*, a condition of pleural cavity contg. pus and gas.

*Pyrexia*, elevation of body heat (fever).

*Pyrosis*, waterbrash.

*Pyuria*, a condition of urine containing pus.

*Quartan*, a form of ague with paroxysm returning after two days' intermission.

*Quinism*, symptoms due to excess of quinine.

*Quinsy*, acute inflmtn. of tonsils.

*Rabies*, a non-febrile dis. due to a specific poison.

*Râles*, certain sounds heard in auscultation.

*Ramollissement*, softening of organs, especially of cent. nerv. system.

*Red gum*, an eruptive skin dis. of infants.

*Relapsing fever*, a contind. contg. fever without eruption, with relapse at intervals.

*Remittent fever*, a paroxysmal fever, with remitting paroxysms.

*Retching*, an ineffectual effort at vomiting.

*Retinitis*, inflmtn. of retina.

*Rheumatic arthritis*, a dis. of the joints associated with rheumatism.

*Rheumatism, acute*, an acute febrile dis. with pyrexia, sweats, &c., and shifting inflmtn. of joints.

*Rheumatism, chronic*, a disease of the joints of chronic course.

*Rhonci*, certain signs heard in auscultation.

*Rickets*, a general dis. of nutrition, affecting the bones and other structures.

*Rigor*, syn. Shivering fit.

*Ringworm*, a dis. of hair follicles spreading in an annular manner.

*Risus sardoniacus*, an expression of face usually observed in tetanus.

*Roseola*, an affection of the skin (with crimson tint).

*Rubella*, a specific eruptive fever, accompanied by rose-red spots on skin.

*Rubrola*, syn. Measles.

*Rupia*, crusts forming over foul ulcers of syphilis and lupus.

*Sacchorrhœa*, discharge of sugar in any excretion or discharge.

*Salivation*, excessive flow of saliva.

*Sarcocœle*, any solid enlargement of testicle.

*Sarcoma*, a tumour formed from modified embryonic connective tissue.

*Satyrîasis*, morbid sexual desire in males.

*Scabies*, simple infusn. of skin prod. by acarus scabiei and the scratching.

*Scaldhead*, a popular term, syn. Kerion.

*Scarification*, the making of incisions.

*Scarlatina*, syn. Scarlet fever.

*Scarlet fever*, an infect. spec. fever, with redness of throat, red rash, &c.

*Sciatica*, neuralgia in district of the sciatic nerve.

*Schirrus*, a hard, glandular, cancerous tumour.

*Sclerema neonatorum*, a dis. of the newly born, charactzd. by tense skin.

*Scleroderma*, a dis. characterized by hardness of skin.

*Scleroma*, hardness of the softer tissues.

*Sclerosis*, a disease of the spinal cord.

*Sclerostoma*, a genus of strongyloid parasites.

*Scorbutus*, syn. Scurvy.

*Serofula*, a morbid afflection of the absorbent glands.

*Scurvy*, a dis. resulting from lack of fresh vegetables in diet.

*Seybald*, feces in hard lumps.

*Sin-sickness*, a dis. of nerv. system prod. by motion of ship.

*Sæmiology*, syn. Symptomology.

*Septicæmia*, the condition produced by septic matter in the blood.

*Sepulchæ*, symptoms occurring after certain diseases.

*Serpiginous*, creeping (ulcers or cancers).

*Shampooing*, a treatment by rubbing and kneading.

*Shingles*, popular name for herpes zoster.

*Shock*, sudden depression of functions by an injury or emotion.

*Sibilant*, whistling (râle or rhoncus).

*Singultus*, syn. Hiccup.

*Skolaic*, high pitched (resonance).

*Skoliosis*, syn. Curvature of spine.

*Slough*, dead matter resulting from gangrene, ulcers, &c.

*Small-pox*, an acute, spec., infect. dis., with fever, eruption, &c.  
*Sinuspiles*, the condition of nasal discharge in syphilitic children.

*Solis ictus*, syn. Sunstroke.

*Somniloquy*, talking in sleep.

*Sopor*, an unnaturally deep sleep.

*Sordes*, crusts forming upon teeth, lips, in cases of exhaustion.  
*Soughle*, soft blowing sounds (heart, vessels, lungs).

*Spanemnia*, a condition of too-thin blood.

*Spasm*, abnormal contraction of muscle.

*Spermatorrhœa*, involuntary discharge of semen.

*Sphaculus*, the process of, or matter resulting from, mortification.

*Spina bifida*, a malformation of spine.

*Spirillum*, a tribe of spiral bacteria.

*Spirochæte*, syn. Spirillum.

*Splenization*, spleen-like condition of lung.

*Sporadic*, occurring occasionally.

*Squamæ*, scales on skin.

*Squinting*, syn. Strabismus.

*Stadium*, a stage in disease.

*Staphyloma*, limited protrusion of tissues of eyeball.

*Stasis*, local arrest of circulation.

*Stearrhœa*, syn. Steatorrhœa (seborrhœa), flux of fatty secretion from skin.

*Steatoma*, an atheromatous cyst.

*Stenosis*, a constriction of tube or opening.

*Stercoraceous*, dung-like (vomit).

*Stertor*, sounds as of snoring in throat.

*Sthenic*, strong, vigorous.

*Stiff neck*, muscular torticollis.

*Stillicidium*, falling by drops.

*Stomatitis*, inflamtn. of the mouth.

*Strangulation*, constriction of a tube preventing passage.

*Strangury*, conditn. with desire to micturation, which is painful and in drops.

*Stricture*, a contraction of duct, tube, or opening.

*Stridor*, a peculiar noisy (harsh, musical, or crowing) breathing.

*Stroke*, an attack of apoplexy or paralysis.

*Strongylus*, a genus of nematoid worms.

*Strophulus*, a papular eruption of skin (folliculitis) in infants  
*Struma*, syn. Scrofula.

*Strumous*, scrofulous.

*Stupor*, partial loss of consciousness.

*Sub-acute*, between acute and chronic (disease).

*Subsultus tendinum*, twitching of tendons.

*Succussion*, shaking as a method of physical examination.

*Sudamina*, minute vesicles upon the skin.

*Suffusion*, abnormal pouring out of fluid into tissues.

*Sugillation*, dark appearance caused by extravasatn. of blood.

*Suppression*, complete stoppage (not merely retention).

*Suppuration*, formation of pus.

*Swine-pox*, a form, possibly, of small-pox, with imperfect development of pustules.

*Sycosis*, a form of folliculitis upon the face.

*Syncope*, suspension of animation from failure of heart.

*Synovial*, relating to the joints.

*Syphilis*, a specif. contag. non-infect. dis., communicated by absorptn. at broken surface, or by hereditary transmission.

*Syringomyelia*, a condition with cavities in spinal cord.

*Systolic*, belonging to the heart's contractn. or systole.

*Tabes*, a wasting.

*Tabes mesenterica*, tubercular or scrofulous wasting of mesenteric glands.

*Tache*, a patch or spot (upon skin).

*Tenia*, syn. Tape-worms. A genus of cestode entozoa.

*Tirantism*, a dancing mania, formerly epidemic in Italy.

*Tenesmus*, sensation of fulness and weight about anus, with straining at stool.

*Tertian*, intermitt. fever, paroxysms recurring at third day, or 48 hours.

*Tetanus*, syn. Lock-jaw. A dis. characterized by spasm of muscles.

*Tetany*, a neurosis with recurring tonic spasms.

*Tetter*, a "tickling and itching scab" upon the skin.

*Thoracentesis*, tapping (centesis) of the chest.

*Thread-worm*, the oxyuris or seat-worm.

*Thrombosis*, coagulation of fibrin in heart, blood-vessels, or lymphatics.

*Thrush*, some forms of stomatitis from aphthae, &c.

*Tic-douloureux*, neuralgia of the fifth nerve.

*Tinea*, dis. of skin from vegetable parasites. The parasites. *Titubation*, stumbling, staggering gait.

*Tonic*, (spasms) with muscles continuously contracted.

*Tophus*, concretions, especially those of gout.

*Terminalia*, colicky or griping pains in abdomen.

*Torpor*, mental and bodily inactivity.

*Torticollis*, twistg. of neck on one side. Wry neck.

*Tribula*, micro-copic fungi of the ord. Saccharomycetes.

*Toræmia*, poisoning of the blood (from intern. conditns.).

*Trance*, a sleep-like state, occurring spontaneously.

*Traumatic*, connected with a wound or injury.

*Tremor*, clinic spasm consistg. of movements of small amplitude.

*Trichiasis*, a conditn. with eye-lashes turned inwards.

*Trichina*, a genus of nematoid worms (flesh-worms). They are killed at 170° F.

*Trichinosis*, the dis. produced by trichinae.

*Trichocephalus*, a genus of nematoid worms (whip-like).

*Trichomonas vaginalis*, a spermatozoon-like animalcule in vaginal mucus.

*Trichophyton*, a genus of parasitic fungi which cause tinea.

*Trismus*, tetanic closure of the jaw.

*Trismus Nascentium*, a form of tetanus in dewly-born infants.

*Tubercle*, "a little lump of any kind"

*Tubercular*, characterized by tubercles.

*Tuberculosis*, the production of tubercle.

*Tumour*, a swelling (caused by new growth).

*Tunnel-worm*, syn. *Sclerostoma duodenale*.

*Turgescence*, a swollen condition.

*Tussis*, syn. A cough.

*Tylosis*, thickenings of epidermis from pressure, friction, &c.

*Tympanites*, distension of abdomen from gas.

*Typhlitis*, inflamtn. of cæcum.

*Typhoid fever*, a continued fever of long duration, with eruptn., enlargement of spleen, diarrhoea, and peculiar intestnl. lesions.

*Typhus*, a contagious febrile dis., with peculiar dark rash and considerable cerebral depression.

*Ulcer*, a solution of continuity on an epithelial or endothelial surface, secreting pus.

*Uæmia*, nervous symptoms occurring in dis. which prevent secretn. or discharge of urine.

*Urticaria*, a form of erythrema with burning and itching. Nettle rash.

*Vaginitis*, inflamtn. of the vagina.

*Vaginitismus*, a chronically inflamed and excoriated cond'tn. of the hymen and neighbouring parts of vagina.

*Varicocele*, a varicose condition of the veins of spermatic cord.

*Variola*, syn. Small-pox.

*Venesection*, abstraction of blood by opening a vein.

*Verruca*, a wart.

*Vertigo*, syn. Dizziness; Swimming of the head.

*Vesicle*, a minute bladder upon the skin.

*Vibices*, stripe-like discolorations upon the body.

*Vicarious*, expressing substitution of one for another.

*Virulent*, intense or malignant (disease).

*Virus*, any contagious material.

*Vitiligo*, a dis. with piebald condition of skin.

*Volvulus*, syn. Intussusception.

*Vomica*, an ulcerative space in lung communicating with bronchi.

*Water on the brain*, syn. Hydrocephalus.

*Waxy disease*, syn. Albuminoid disease.

*White gum*, syn. Strophulus albidus.

*White leg*, syn. Phlegmasia dolens.

*Whites*, syn. Leucorrhœa.

*Whitlow*, an acute inflamtn. of a digit, tending to terminate rapidly in suppuratn., and not limited to matrix of nail.

*Whooping-cough*, an infect. specif. dis., with spasmod. cough, affecting children.

*Wrist-drop*, a form of paralysis affecting the wrist.

*Xanthelasma*, a yellow lamina in the outer stem.

*Xanthoma*, a peculiar kind of yellow growth.

*Xeroderma*, an atrophy of the skin, with dryness, roughness, and greyish discoloration.

*Yellow fever*, a pestilential and contag. fever, of continuous and special type.

*Zona*, syn. Zoster; a form of herpes running half-way round the trunk.

*Zymotic*, *Zymic*, the poison of epidemic, endemic, and contag. diseases.

## CONTENTS OF AN ANTIDOTE BAG.

## INSTRUMENTS.

*Bistoury*, forceps, and tubes, for tracheotomy.

*Catheter*, flexible No. 8.

*Lancet*, bleeding.

[childn.

*Stomach-pump* or *tube*, small œsoph. tube for

*Syringe*, brass, with suitable canula for

*Syringe*, hypodermic. [transfusion.

## EMETICS.

*Apomorphine Hydrochlor.*, 2% soln. B.P.: dose,

[2 to 8 m.

*Ipecacuanha*, powder.

*Mustard*.

*Zinc sulphate*.

## ANTIDOTES.

*Acid, Acetic*.

*Aconitine* (English) soln., 1 in 240 : dose, 1 to

4 m.

*Amyl nitrite*. Capsules contg. 5 m.

*Atropine Sulphate*, 1 in 100, the Liq. B.P.: dose, 1 to 4 m.

*Brandy*.

*Chloral*.

*Chloric Ether*.

*Chloroform*.

*Digitalis*, tincture.

*Iodine*, in pot. iodide.

*Iron dialysed*, Wyeth's or other good.

*Magnesia*, calcined.

*Morphine meconate* (10% : dose, from 5 m).

*Muscarine* (5% : dose, from 10 m).

*Pilocarpine nitrate* (5% : dose, 10 m).

*Sal volatile*.

*Strychnine nitrate* (2% : hypod. dose, 2 to 3 m).

*Sassaia*.

*Turpentine Oil* (must be French).

## DOMESTIC TREATMENT IN CASES OF POISONING.

In case of poisoning, a medical man should immediately be sent for.

The following is a list of substances recommended for domestic use in cases of emergency, by A. W. Blythe, M.R.C.S., in his well-known work on Poisons.

### (1) *The Multiple Antidote.*

Saturated soln. Sulphate of Iron 100 parts.

Water .. .. 800 "

Magnesia .. .. 88 "

Animal charcoal (kept in the dry state, mixed) .. .. 44 "

Given in wine-glass doses in poisoning by arsenic, zinc, opium, digitalis (foxglove), mercury, or strychnine. Useless in poisoning by phosphorus, antimony, or caustic alkali.

(2) *Calced Magnesia*, for use in poisoning by acids.

(3) *French Turpentine*, for phosphorus poisoning.

(4) *Powdered Ipecacuanha* as an emetic, dose 30 grains; or *Zinc Sulphate*, dose 25 to 30 grains.

(5) A tin of *Mustard* (as emetic).

General directions.—First administer an emetic followed by the *multiple antidote*; this is not poisonous.

For phosphorus, give *French Turpentine*; half drachm doses every half-hour.

For acids, give *Calced Magnesia*.

For alkalis, give *Vinegar*.

Preserve the vomit, &c., if intentional poisoning be suspected.



# SYMPTOMS AND TREATMENT IN CASES OF POISONING.

Poison.	Symptoms.	Treatment.
<i>Acetic acid</i> , glacial.	Corrosion, perforation? odour, abdom. pain, collapse.	Not stom.-pmp. Soap and water. Lime, magnesia. Milk, oil, thick gruel. Morphia agst. shock.
<i>Aconite</i> .. .. "Monkshood." "Wolfsbane." "Blue Rocket."	Tingling and numbness, warmth at pit stom., paralysis from below up. Pulse and resp. depressed. Mind clear.	Stom.-pmp. or emet. Stimulants. Atropia hypoderm. Keep warm and recumbt. Digitalis hypoderm. Amyl nitrite. Artif. respirn.
<i>Alcohol</i> .. .. Brandy, &c.	Intoxication, giddiness. Lips livid, convulsions, coma, stupor, &c.	Stom.-pmp. or apomorph. hypoderm. Battery. Coffee. Douche. Amyl nitrite.
<i>Almonds</i> , oil of bitter.	See Hydrocyanic acid.	
<i>Ammonia</i> .. ..	Burng. pain in mouth, stom., chest. Membr. swollen, red. Diffcult. breathg., bloody vomitg. Pulse slow. Pallor, loss voice, &c.	Not stom.-pmp. Vinegar, lemon juice. Demul. drinks. Tracheotomy. Inhal. of steam or chlorfm. Morphia hyderm. for shock.

# SYMPTOMS AND TREATMENT IN CASES OF POISONING—*continued.*

Poison.	Symptoms.	Treatment.
<i>Antimony</i> .. .. Tartar emetic, &c.	Metal. taste, vomitg., choking sensn. Stom. pain, purg- ing. Thirst, cramps, cold sweatg. Head congestn., faintness. Pulse and breathg. weak. Collapse.	Tannic or gallic acid. Tea, coffee. Demult. drinks. Stimults. Mor- phia hypoderm.
<i>Aquafortis</i> ..	See Nitric acid.	
<i>Arsenic</i> .. .. Vermin killers, &c.	Faintness, depression, burng. pain. Vomitg., purging, Cramp, tightness in throat, thirst. Pulse slow, breath painful. Skin clammy. Col- lapse.	Stom.-pmp. or apomorph. hypoderm. Empty and wash stom. well. Dialys. iron. Magnesia, castor oil. Stimults. Mucil. drinks. Warmth. Morphia hypoderm.
<i>Arum macula- tum.</i> Cuckoo - pint, Lords and ladies, Cows and calves, Wake-robin.	Vomitg., purging, convulsns., Pupil dilat., coma. Tong. swells.	Emetic. Castor oil. Coffee.

# SYMPTOMS AND TREATMENT IN CASES OF POISONING—continued.

Poison.	Symptoms.	Treatment.
<i>Atropine</i> .. .. <i>Belladonna</i> .	See <i>Belladonna</i> .	
<i>Earium</i> .. .. <i>Baryta</i> .	Vomitg., pain in bowels. Purg- ing. Pulse and breathg. dis- turbed. Cramp, parals., gid- diness.	Stom.-pmp. or emetc. Sulphates. Warmth. Stimults. Morph. hypo- derm.
<i>Belladonna</i> .. .. Deadly Night- shade, &c.	Mouth, throat hot. Eyes sparklg., face flushed. Pupil dilat. Delirium, staggering. Rash?	Stom.-pmp. or emetc. Stimults. Coffee. Pilocarp. hypoderm. Artif. respn.
<i>Benzol</i> .. .. <i>Benzine-ene</i> .	Narcotic. Twitchings, diffic. breathg. Head noises.	Stom.-pmp. or emetc. Stimults. Atrop. hypoderm. Douche. Bat- tery. Artif. resp.
<i>Brucine</i> .. ..	Same as Strychnine.	
<i>Calabar Bean</i> ..	See <i>Physo-tigmine</i> .	
<i>Camphor</i> .. ..	Odour, faintness, languor, deli- rium, convulsns., coldns. Pulse quick. Breathg. diffict.	Stom.-pmp. or apomorph. hypoderm. Stimults. Warmth. Douche.

# SYMPTOMS AND TREATMENT IN CASES OF POISONING—*continued.*

Poison.	Symptoms.	Treatment.
<i>Cantharides</i> .. Spanish fly.	Burn. pain throat, stomh. Diarrh., salivtn., album. urine. High temp., head- ache, quick pulse. Insensbty., convuls.	Stom.-pmp. (?) or emetc. Demul. drink, no oil. Morphia. Baths, linsd. poult.
<i>Carbolic acid</i> ..	Burng. pain mouth, stomh. Muc. memb. white hardnd. Skin cold, pupils contract. Urine dark. Insensbty., coma, &c. Collapse.	Stom.-pmp. or emetc. Soda or sacch. lime. White egg. Castor oil. Stimults. Warmth. Battery. Atrop. hypoderm. Nitrite amyl. Bleed- ing.
<i>Carbonic acid</i> .. Choke damp, same for Carb. oxide.	Pains head, throat. Giddns., sleepns. Insensbty. Heart, breath hurried. Coma.	Fresh air. Artif. respn. Ammonia respd. Friction. Stimults. Oxygen. Douche. Transfusn. or bleedg. (?)
<i>Caustic pot. or sod.</i>	See Potash.	
<i>Chloral</i> .. ..	Sleep, loss musculr. power, reflex actn., sensbty. Diminsh., stert. breathg.	Stom.-pmp. or emetc. Warmth. Rousing. Coffee. Strychn. hypo- derm. Nitrite amyl. Artif. respn.

## SYMPTOMS AND TREATMENT IN CASES OF POISONING—continued.

Poison.	Symptoms.	Treatment.
<i>Chlorine</i> .. ..	Tightns., irrit., chest, cough. Diffic. breathg., swallowg.	Fresh air. Inhale steam, dilut. ammon., sulph., hydgn., chlorfm., ether.
<i>Chloroform</i> ..	If swallowed. Stom.-pmp. or emetc. Carb. soda soln. Rousing. Mustd. to heart. Nitrite amyl. If inhaled. Fresh air. Douche. Artif. resp. Nitrite amyl. Battery.	
<i>Choke damp</i> , v. p.		
<i>Chromium</i> .. .. Chromates, &c.	Vomitg., purging. Cramps, depressn. Suppressn. urine. Pupils dilat.	Stom.-pmp. or emetc. Magnes. carb., chalk. Gruel.
<i>Coal gas</i> .. ..	Giddnss., insensbty. Diffic. breathg. Asphyx. Coma.	Mustd. to heart. Also as for Carbonic acid.
<i>Cocculus Indicus</i> .	See Picrotoxine.	
<i>Colchicum</i> .. .. Meadow saffron.	Vomitg., purging. Throat irritn. Thirst. Sweat, twitchgs. Delirium.	Stom.-pmp. or emetc. Tannic, gallic acid. Demul. drink. Stimults. Morphia.

# SYMPTOMS AND TREATMENT IN CASES OF POISONING—continued.

Poison.	Symptoms.	Treatment.
<i>Colocynth</i> .. ..	Vomitg., purging. Cold. Weak pulse. Collapse.	Stom.-pmp. or emetc. Camphor and similar to colchicum.
<i>Conine</i> .. .. Hemlock	Staggering, loss of musc. power, sight. Diffic. breathg. swellg. Asphyxia.	Stom.-pmp. or emetc. Tannic acid. Warmth. Artif. resp. Stimult. Atropia hypodm.
<i>Copper</i> .. ..	Colic, gripng. Metal. taste. Vomitg., purging. Thirst, sweatg., coldness, giddiness, coma.	Stom.-pmp. or emetc. Demul. drink. Morphia hypodm. Linsd. poult.
<i>Croton oil</i> .. ..	Abdom. pain, purging, vomitg.. Cold skin, collapse.	Stom.-pmp. or emetc. Camphor. Stimults. Morphia. Gruel. Linsd. poult.
<i>Curarine</i> .. ..	Paralysis of motors and respirn.	Artif. respn. Stimults. Ligature and wash wound.
<i>Cyanides</i> .. ..	See Hydrocyanic acid.	
<i>Daturine</i> .. ..	Treat as for Atropine.	

SYMPTOMS AND TREATMENT IN CASES OF POISONING—*continued.*

Poison.	Symptoms.	Treatment.
<i>Digitalis</i> .. .. Foxglove.	Abdom. pain, purging, vomitg. Headache, small pulse. Delirium, convulsns. Cold skin, sweat. Pupils dilat.	Stom.-pmp. or emetc. Stimults. Tannic acid. Keep patnt. lying.
<i>Ergot</i> .. ..	Tingling, cramps, vomitg., diarrh.	Stom.-pmp. or emetc. Tannic, gallic acid. Nitrite amyl. Stimults. Keep warm, lying.
<i>Ether</i> .. ..	Anæsthetic action .. ..	Artif. resp. Fresh air. Douche. Stimults. Blows on chest if heart stopd.
<i>Fly powders.</i> ..	Generally arsenic.	
<i>Gas</i> .. ..	See Coal gas.	
<i>Gelsemium</i> .. ..	Giddns. Pain eyes, brows, double sight, weakness, suf- focation, coma.	Stom.-pmp. or emetc. Douche. Stimults. Artif. respn.

# SYMPTOMS AND TREATMENT IN CASES OF POISONING—*continued.*

Poison.	Symptoms.	Treatment.
<i>Hydrochloric acid</i> Muriatic acid. Spirits salts.	Burng. pains. Vomitg., thirst, &c.	Not stom.-pmp. ? Bicarbonate soda. Magnesia, lime water, soap water. Demul. drinks. Morphia hypod.
<i>Hydrocyanic acid</i> Prussic acid.	Insensbty. Pupil dilat., skin cold, sweatg. Diffic. breathg.	Stom.-pmp. or emetc. Ammonia inhald. Stimults. Atropia hy- podm. Artif. respir. Battery.
<i>Hyoscyamine</i> ..	Same treatment as Atropine.	
<i>Iodine</i> .. ..	Stom., throat pain. Vomitg., purging, giddns., faintns. (Starch test).	Stom.-pmp. or emetc. Starch. Nitrite amyl. Morphia.
<i>Jaborandi</i> .. ..	Same treatment as Pilocarpine.	Stom.-pmp. or emetc.
<i>Laburnum</i> .. ..	Purging, vomitg., drowsiness, convulsions.	Douche. Stimults. Coffee.
<i>Lead</i> .. ..	Metal. taste, thirst, colic, cramps, cold sweat, paralysis.	Stom.-pmp. or emetc. Sulphates. Iodide potas. Morphia.



SYMPTOMS AND TREATMENT IN CASES OF POISONING—*continued.*

Poison.	Symptoms.	Treatment.
<i>Nitric acid</i> ..	Corrosion, vomitg. Abdom. pain. Diffic. breathg.	Not stom.-pmp. Magnesia, lime water, &c. Gruel, oil, &c. Mor- phia hypodm. Tracheoty.?
<i>Nitro-benzol</i> .. Artif. ess. al- monds.	Nausea, diffic. breathg., drow- -ins., stupidity. Coma.	Stom.-pmp. or emetc. Stimults. Douche. Artif. respn. Battery. Atropia hypodm.
<i>Nitrous oxide</i> ..	Anæsthesia .. .. .	Fresh air, oxygen. Artif. respn.
<i>Opium</i> .. ..	See Morphine.	
<i>Oxalic acid</i> ..	Vomitg., purging, cramps, &c.	Chalk, sacch. lime. Purgats. No potash, soda, or ammonia.
<i>Phosphorus</i> .. (Matches.)	Odour. Vomitg. Purple spots. Delirium, &c.	Emetc. French oil turp. Copper sulphate. Purgat.
<i>Physostigmine</i> .. Calabar bean.	Faintns., prostratn. Twitchg., giddis. No delirm.	Stom.-pmp. or emetc. Stimul. Artif. respn. Atropia hypodm. Chloral. Strychnia hypodm.

# SYMPTOMS AND TREATMENT IN CASES OF POISONING—continued.

Poison.	Symptoms.	Treatment.
<i>Lemons</i> , salt of..	See Oxalic acid.	
<i>Lobelia</i> .. ..	Vomitg., giddiness, tremors, convulsns. Depression, collapse.	Stom.-pmp. or emetc. Tannic acid. Warmth. Stimults. Keep lying.
<i>Morphia</i> .. ..	Intoxien. Sleep. Pupils contract. Respirn. and pulse slow, depressed.	Stom.-pmp. or emetc. Rouse. Inhal. ammonia. Douche. Battery. Atrop. hypodm. Nitrite amyl. Artif. respn.
<i>Muscarine</i> .. .. Flyfungus (Mushrooms).	Colic, purging, vomitg., excitmt. Coma.	Stom.-pmp. or emetc. Stimults. Castor oil. Warmth. Atropia hypodm.
<i>Nicotine</i> .. ..	See Tobacco.	
<i>Nitrate of Potassium</i> Saltpetre.	Nausea, vomitg., purging, coldness, tremors, convulsns. Paralysis. Collapse.	Stom.-pmp. or emetc. Demul. drinks. Stimults. Warmth. Nitrite amyl. Atropia hypodm.

SYMPTOMS AND TREATMENT IN CASES OF POISONING—*continued.*

Poi-on.	Symptoms.	Treatment.
<i>Picrotozine</i> ..	Vomitg., weakness. Sleep. Eruption.	Stom.-pmp. Chloral. Pot. bromide.
<i>Pilocarpine</i> ..	Sweatg., salivatr. Headache, quick pulse.	Atropia hypodm. or Belladonna by mouth.
Potash.. ..	Caustic taste. Corrosion. Painful purging, skin cold.	Not stom.-pmp. Vinegar, lemon juice. Oil. Demul. drink.
<i>Prussic acid</i> ..	See Hydrocyanic acid .. ..	Stom.-pmp. or emetc.
<i>Resorcin</i> .. ..	Prickling of skin, giddis. Sweatg. Insensbty. White lips, dry tongue.	Albumen, soda, sacch. lime. Sti- mults. Warmth. Battery. Nitrite amyl. Atropia hypodm.
<i>Savin</i> .. ..	Vomitg., painful purging. Coma, convulsns.	Emetc. Linsd. poult. Purgat. Morphia hypodm.
Sewer gas .. ..	Livid lips, conjunctivæ in- jectd., pupils dilatd. and in- sensible. Tonic convulsns., high temp.	Fresh air. Artif. respn. Ammonia. Stimulants. Coffee. Hot and cold douche.

SYMPTOMS AND TREATMENT IN CASES OF POISONING—*continued.*

Poison.	Symptoms.	Treatment.
Snake bite .. ..	.. .. .	Cauterisation and ligature. Stimulants. Permanganate. Liquor potassæ. Artif. respn. Ammonia injectn.
Soda .. ..	See Potash.	
Soothing syrup ..	See Opium.	
Stramonium .. (Thorn apple.)	Pupils dilatd., delirium, rash on skin, paralysis. Coma.	Stom.-pmp. or emetc. Coffee. Stimulants. Pilocarp. (hypoderm). Artif. respn. Mustard douche, &c., to limbs.
Strychnine .. ..	Convulsns. .. ..	Stom.-pmp. or emetc. Pot. bromide. Animl. charcl. Nitrite amyl. Curare. Artif. respn.
Tartaric acid ..	See Acids. Convulsns. .. ..	Alkalies (potash and soda) and ammonia not suitable. Use lime, castor oil.

SYMPTOMS AND TREATMENT IN CASES OF POISONING—*continued.*

Poison.	Symptoms.	Treatment.
Tobacco .. ..	Vomitg., dim vision, weak pulse, and cold skin.	Stom.-pmp. or emet. Stimulant. Strychnia (hypoderm). Tannic acid. Hot applictn. to skin. Keep lying.
Turpentine ..	Intoxication, coma, collapse, pupils contractd.	Stom.-pmp. or emet. Apomorphia if necess. Magnes. sulph. Demulct. drink.
Veratrine .. ..	Thirst, vomiting, painful diarrh. Headache, weak pulse.	Stom.-pmp. or emet. Coffee. Stimulants. Warm applictn. and keep lying.
Zinc .. .. .	Painful vomitg., quick pulse and breathg., paralysis, coma.	Potass. or sod. carb. Tannic or gallic acid, milk, eggs. Morphia (hypod.).

# POSOLOGICAL TABLE.

Taken from the Pharmacopœia of Guy's Hospital, and supplemented with metrical equivalents.

gr. = grain.

G. = Gramme.

Age.	Maximum Dose.			Twenty Grains.
	One Fluid Ounce (= 8 fl. 3).	Sixty Grains.	G.	
1 month..	30 ℥ = 1·8	3 gr. = 0·19	G.	1 gr. = 0·06
3 months	40 ℥ = 2·4	4 gr. = 0·26		2 gr. = 0·13
6 " "	1 fl. 3 = 3·5	6 gr. = 0·45		3 gr. = 0·19
9 " "	1 fl. 3 = 5·3	8 gr. = 0·52		4 gr. = 0·26
1 year	1 fl. 3 = 5·3	10 gr. = 0·58		4 gr. = 0·26
2 years	1 fl. 3 = 7·1	12 gr. = 0·78		5 gr. = 0·32
3 " "	2 fl. 3 = 8·9	15 gr. = 1·17		6 gr. = 0·39
4 " "	2 fl. 3 = 10·6	18 gr. = 1·30		7 gr. = 3·45
5 " "	3 fl. 3 = 12·4	20 gr. = 1·62		8 gr. = 0·52
6 " "	3 fl. 3 = 14·2	25 gr. = 1·94		10 gr. = 0·65
7 " "	4 fl. 3 = 16·0	30 gr. = 2·27		12 gr. = 0·78
8 " "	4 fl. 3 = 17·7	35 gr. = 2·59		14 gr. = 0·91
10 " "	5 fl. 3 = 19·5	40 gr. = 2·92		15 gr. = 0·97
12 " "	5 fl. 3 = 21·3	45 gr. = 3·24		16 gr. = 1·04
13 " "	6 fl. 3 = 23·0	50 gr. = 3·59		17 gr. = 1·10
14 " "	6 fl. 3 = 24·8	60 gr. = 4·30		18 gr. = 1·17
15 " "	7 fl. 3 = 26·6	70 gr. = 5·01		20 gr. = 1·30
16 " "	7 fl. 3 = 28·4	80 gr. = 5·72		18 gr. = 1·17
17 " "	8 fl. 3 = 30·2	90 gr. = 6·43		16 gr. = 1·04
18 " "	8 fl. 3 = 32·0	100 gr. = 7·14		14 gr. = 0·91
19 " "	9 fl. 3 = 33·8	110 gr. = 7·85		10 gr. = 0·65
20 " "	9 fl. 3 = 35·6	120 gr. = 8·56		
20 to 45 years	1 fl. 3 = 37·4	130 gr. = 9·27		
50 years	1 fl. 3 = 39·2	140 gr. = 9·98		
60 to 70 years	6 fl. 3 = 41·0	150 gr. = 10·69		
80 to 90 "	5 fl. 3 = 42·8	160 gr. = 11·40		
100 years	4 fl. 3 = 44·6	170 gr. = 12·11		

TABLE SHOWING THE BOILING POINTS OF OFFICIAL SUBSTANCES, U.S.P.  
(with B.P. added when stated and not identical).

Name.	° C.	° F.	
Acidum Carbolicum .. ..	181-186	357·8-366·8	188·3° C.; 371° F. B.P. (not higher).
Æther .. .. .	37	98·6	
Æther Aceticus .. .. .	76	168·8	
Alcohol 91% .. .. .	100	212	
Aqua .. .. .	76	168·8	
Amyl Nitris .. .. .	96	205	90-100° C.; 194-212° F. B.P.
Benzinum .. .. .	78	172·4	
Bromum .. .. .	50-60	122-140	57·2-62·8° C.; 135-145° F. B.P.
Camphora .. .. .	205	401	
Camphora Monobromata ..	271	525	
Carboni Bisulphidum ..	46	114·8	
Chloroformum Purif. ..	60-61	140-142	(= 1-1% Alcoh.).
Chloral (hydrate) .. ..	95	203	94·4-96·7° C.; 202-206° F. B.P.
Creasotum .. .. .	200-220	392-423	(with decomposition).
Glycerinum .. .. .	290	554	
Hydrargyrum .. .. .	350	662	
Oleum Sinapis Vol. .. ..	148	298·4	About 147·8° C.; 298° F. B.P.
Spir. Ætheris Nitrosi ..	63	145·4	
Thymol .. .. .	230	446	

Boiling-points of the above are in most instances not given in the B.P.

TABLE OF MELTING POINTS OF OFFICIAL SUBSTANCES (from Remington's Pharmacy).

Name.	° C.	° F.	Name.	° C.	° F.
Acid. Acetic. Glac. ..	15	59	Zinci Chloridum .. ..	115	239
Sodii Sulphas .. ..	30	86	Iodoformum .. .. .	115	239
Oleum Theobromæ ..	30-35	86-95	Piperina .. .. .	123	262·4
Adeps .. .. .	35	95	Resina .. .. .	135	275
Sodii Carbonas (crys.) ..	35	95	Strychninæ Sulphas ..	135	275
Acid. Carbolic. (crys.) ..	36-42	96·8-107·6	Ammonii Sulphas ..	140	284
Sodii Phosphas .. ..	40	104	Codeina .. .. .	150	302
Petrolatum .. .. .	40-51	104-123·8	Chrysarobinum .. ..	162	323·6
Phosphorus .. .. .	44	111·2	Ammonii Nitras .. ..	165-166	329-330·8
Sevum .. .. .	45-50	113-122	Santoninum .. .. .	170	338
Sodii Hyposulphis ..	50	122	Camphora .. .. .	175	347
Cetaceum .. .. .	50	122	Acid. Salicylic. .. ..	175	347
Thymol .. .. .	50	122	Acid. Chromic. .. ..	190	374
Quinina .. .. .	57	134·6	Salicinum .. .. .	198	388·4
Chloral .. .. .	58	136·4	Aluminii Sulphas ..	200	392
Cera Flava .. .. .	63-64	145·4-147·2	Argenti Nitras .. ..	200	392
Camphora Monobromata	65	149	Picrotoxinum .. ..	200	392
Cera Alba .. .. .	65	149	Elaterinum .. .. .	200	392
Pot. et Sod. Tartras ..	75	167	Cinchoninæ Sulphas ..	240	464
Quininæ Valerianas ..	90	194	Cinchonina .. .. .	250	482
Alumen .. .. .	92	197·6	Hydrarg. Chlorid. Corr.	265	509
Acid. Citric. .. .. .	100	212	Strychnina .. .. .	312	593·6
Atropina .. .. .	111	237·2	Sodii Nitras .. .. .	312	593·6
Iodum .. .. .	114	237·2	Potassii Nitras .. ..	340	644
Sulphur Lotum .. ..	115	239	Argenti Iodidum .. ..	400	752



TABLE SHOWING THE SP. GR. OF THE LIQUIDS, ETC., SPECIFIED IN THE BRITISH PHARMACOPŒIA.

Name.	Sp. Gr. Aq. = 1000.	Name.	Sp. Gr. Aq. = 1000.
Acetum .. .. .	1017-1019	Æther Acetic. .. .. .	†900
" Canthar. .. .. .	†1060	" Purus .. .. .	*720
" Scillæ .. .. .	1038	Alcohol Amylic. .. .. .	818
Acid. Acet. 1·044 Ac. Acet. Dil ..	1006	" Ethylic. .. .. .	*800
" Glac. .. .. .	1058	Amyl Nitris .. .. .	†880
" Carbol. . . . .	1060-66	Aqua Dest. .. .. .	1000
" Liq. .. .. .	1064-67	Chloroform. .. .. .	1497
" Hydrobrom. Dil. .. .. .	1077	Creasotum .. .. .	1071
" Hydrochlor. .. .. .	1160	Glycerinum .. .. .	1250
" Dil. . . . .	1052	Liq. Acid. Chrom. .. .. .	1185
" Hydrocy. Dil. .. .. .	997	" Ammon. .. .. .	959
" Lactic. . . . .	1210	" " Fort. .. .. .	891
" Dil. .. .. .	1040	" " Acet. .. .. .	1022
" Nitric. .. .. .	1420	" " " Fort. .. .. .	1073
" Dil. .. .. .	1101	" " Citr. .. .. .	1062
" Nitro-hydrochlor. Dil. ..	1070	" " " Fort. .. .. .	1209
" Oleic. .. .. .	860-890	" Antim. Chlor. .. .. .	†1470
" Phosph. Conc. .. .. .	1500	" Arsenic. . . . .	1010
" Dil. .. .. .	1080	" " Hydrochlor. .. .. .	1010
" Sulphuric. .. .. .	1813	" As. et Hg Iodid. .. .. .	1016
" Arom. .. .. .	911	" Bi. et Am. Citr. .. .. .	1070
" Dil. .. .. .	1094	" Calci Chlor. .. .. .	1145
" Sulphuros. .. .. .	1025	" " Chlorin. .. .. .	1055
Æther .. .. .	735	" " Sacc. . . . .	1052

\* = not exceeding; † = not below; ‡ = about.

TABLE SHOWING THE SP. GR. OF THE LIQUIDS, ETC.—*continued*.

Name.	Sp. Gr. Aq. = 1000.	Name.	Sp. Gr. Aq. = 1000.
Liq. Chlori .. .. .	1003	Spir. Am. Fort. .. .. .	+847
" Ferri Acet. .. .. .	1031	" Armorac. Co. .. .. .	+920
" " " Fort. .. .. .	1127	" Camph. .. .. .	+850
" " Dial. .. .. .	+1407	" Chlorofm. .. .. .	871
" " Perchlor. .. .. .	1110	" Rect. .. .. .	838
" " " Fort. .. .. .	1420	" Ten. .. .. .	920
" " Pernitr. .. .. .	1107	Syrupas .. .. .	1330
" " Persulph. .. .. .	1441	Syr. Aurant. .. .. .	+1282
" Plumb. Subacet. .. .. .	1275	" " Flor. .. .. .	+1330
" Potassæ .. .. .	1058	" Chloral .. .. .	+1320
" Sodæ .. .. .	1047	" Ferri Iod. .. .. .	+1385
" " Chlorin. .. .. .	1054	" " Phosph. .. .. .	+1305
" " Ethylat. .. .. .	867	" Hemides. .. .. .	+1335
" Zinci Chlor. .. .. .	1460	" Limon. .. .. .	+1340
Mori Succus .. .. .	+1060	" Mori .. .. .	+1330
Olum Eucalypti .. .. .	+900	" Papav. .. .. .	+1330
" Plini Sylv. .. .. .	+870	" Rhei .. .. .	+1310
" Santali .. .. .	+960	" Rhead. .. .. .	+1230
" Sinapis .. .. .	1015-20	" Rosæ Gall. .. .. .	+1335
Paraffin. Dur. .. .. .	82-940	" Scillæ .. .. .	+1345
" Moll. (at M. Pt.) .. .. .	84-870	" Sennæ .. .. .	+1310
Spir. Ætheris .. .. .	809	" Tolut. .. .. .	+1330
" " Nitr. .. .. .	840-5	Theriaca .. .. .	+1400
" Am. Arom. .. .. .	886		

TABLE SHOWING THE SP. GR. OF OFFICIAL SUBSTANCES (U.S.P.), in order of Density, slightly altered from Remington's Pharmacy. The figs. in ( ) show No. of drops to make 60 m (Falbot).

Name.	Sp. Gr. Aq. = 1000.	1 $\frac{3}{4}$ fl. = gr.	Name.	Sp. Gr. Aq. = 1000.	1 $\frac{3}{4}$ fl. = gr.
Benzinum .. .. .	670-675	305-307	Aqua Ammoniae Fort. (66) ..	900	410
Æther Fortior (176) .. ..	725	330	Oleum Eucalypti .. .. .	900	410
Æther .. .. .	750	342	Oleum Menthae Pip. (129) ..	900	410
Spiritus Ammoniae .. .. .	810	369	Oleum Menthae Vir. .. ..	900	410
Alcohol (146) .. .. .	820	374	Oleum Rosmarini (143) ..	900	410
Spiritus Ætheris Nitrosi (116)	823-825	375-376	Acid. Oleicum .. .. .	900-910	410-415
Manna .. .. .	834	—	Oleum Adipis .. .. .	900-920	410-419
Petrolatum .. .. .	835-860	—	Oleum Æthereum .. .. .	910	415
Oleum Erigonitis .. .. .	850	387	Oleum Sabinæ .. .. .	910	415
Oleum Limonis (129) .. ..	850	387	Oleum Amygdalæ Amar. (115)	914-920	416-419
Oleum Aurantii Florum ..	850-890	387-405	Oleum Sesami .. .. .	914-923	416-420
Oleum Terebinthinae (136) ..	855-870	390-396	Oleum Olivæ .. .. .	915-918	417-418
Oleum Aurantii Corticis ..	860	392	Spiritus Frumenti .. .. .	917-930	418-424
Oleum Rosæ (132) .. .. .	860	392	Oleum Cari (132) .. .. .	920	419
Oleum Bergamii (130) .. ..	860-890	392-406	Oleum Cajuputi .. .. .	920	419
Oleum Coriandri .. .. .	870	396	Oleum Chenopodii .. .. .	920	419
Oleum Juniperi (148) .. ..	870	396	Oleum Cubebæ (125) .. ..	920	419
Amyl Nitros .. .. .	872-874	397-398	Oleum Succini .. .. .	920	419
Oleum Rutæ .. .. .	880	401	Oleum Morrhuæ .. .. .	920-925	419-421
Oleum Thymī .. .. .	880	401	Oleum Gossypii Sem. .. ..	920-930	419-424
Spiritus Ammon. Arom. (142)	885	403	Spiritus Vini Gallici .. ..	925-941	421-424
Æther Aceticus .. .. .	889-897	405-409	Alcohol Dilutum (137) .. ..	928	423
Oleum Copaibæ (123) .. ..	890	405.5	Oleum Myristicæ .. .. .	930	424
Oleum Lavandulae (135) ..	890	405.5	Oleum Lini .. .. .	936	426
Oleum Lav. Florum .. .. .	890	405.5	Adeps .. .. .	938	—

TABLE SHOWING THE SP. GR. OF OFFICIAL SUBSTANCES (U.S.P.)—continued.

Name.	Sp. Gr. Aq. = 1000.	1 $\frac{3}{4}$ fl. = gr.	Name.	Sp. Gr. Aq. = 1000.	1 $\frac{3}{4}$ fl. = gr.
Oleum Hedeomæ .. ..	940	428	Liquor Ammon. Acet. (75)	1022	466
Oleum Tigllii (104) .. ..	940-955	428-435	Acid. Sulphuros. (59) ..	1022-1023	466
Copaiba (110) .. ..	940-993	428-453	Thymol (solid) .. ..	1028	—
Cetaceum .. ..	945	—	Limonis Succus .. ..	1030	469
Oleum Santali .. ..	945	431	Croosotum (122) .. ..	1035-1085	472-494
Oleum Valerianæ .. ..	950	433	Liquor Potassæ (62) .. ..	1036	472
Tinct. Ferri Acet. .. ..	950	433	Oleum Cinnamomi (126) ..	1040	474
Oleum Ricini (77) .. ..	950-970	433-442	Oleum Myrciæ .. ..	1040	474
Acid. Sulphuric. Arom. (146)	955	435	Oleum Pimentæ .. ..	1040	474
Cera Flava .. ..	955-967	—	Oleum Amygd. Amar. (no		
Aqua Ammoniac .. ..	959	437	HCy) (115) .. ..	1043-1049	475-478
Oleum-Feniculi (125) .. ..	960	437.4	Liquor Sodæ Chloratæ (63)	1044	476
Cera Alba .. ..	965-975	—	Acid. Acetic. (108) .. ..	1048	477
Oleum Picis Liq. .. ..	970	442	Acid. Hydrochlor. Dil. (60)	1049	478
Oleum Anisi (119) .. ..	976-990	445-451	Liquor Ferri Nitrat. (59) ..	1050	478
Tinct. Ferri Perchlor. (150)	980	446	Oleum Caryophylli (130) ..	1050	478
Vinum Rubrum .. ..	980-1010	451-460	Acid. Acetic. Glac. .. ..	1056-1058	481-482
Camphora .. ..	990-995	—	Acid. Phosphoric. Dil. (59)	1057	482
Vinum Album .. ..	990-1010	451-460	Acid. Nitric. Dil. (60) ..	1059	482.5
Aqua Destillata (60) .. ..	1000	455.7	Liquor Potass. Citrat. ..	1059	482.5
Liquor Calcis .. ..	1000.5	456	Liquor Sodæ .. ..	1059	482.5
Acidum Acetic. Dil. (68) ..	1001.3	459	Oleum Cinnam. (oil of		
Oleum Sinapis Vol. .. ..	1017-1021	463-465	Cassia) .. ..	1060	483
Fel Bovis .. ..	1018-1028	—			

NOTE.—The oz. fl. of U.S.P. is not equal to the oz. fl. of the B.P. The sp. gr. of any liquid may of course be obtained by weighing 1 fl. oz. in grains, and dividing the weight found by the number of grains in a fluid ounce of water (455.7 U.S.P.).

## COMPARISON OF DIFFERENT THERMOMETERS.

Centigrade or Celsius.	Réaumur.	Fahren- heit.	Centigrade or Celsius.	Réaumur.	Fahren- heit.
+ 260	+ 208	+ 500	+ 225	+ 180	+ 437
259	207.20	498.20	224	179.20	435.20
258	206.40	496.40	223	178.40	433.40
257	205.60	494.60	222	177.60	431.60
256	204.80	492.80	221	176.80	429.80
255	204	491	220	176	428
254	203.20	489.20	219	175.20	426.20
253	202.40	487.40	218	174.40	424.40
252	201.60	485.60	217	173.60	422.60
251	200.80	483.80	216	172.80	420.80
250	200	482	215	172	419
249	199.20	480.20	214	171.20	417.20
248	198.40	478.40	213	170.40	415.40
247	197.60	476.60	212	169.60	413.60
246	196.80	474.80	211	168.80	411.80
245	196	473	210	168	410
244	195.20	471.20	209	167.20	408.20
243	194.40	469.40	208	166.40	406.40
242	193.60	467.60	207	165.60	404.60
241	192.80	465.80	206	164.80	402.80
240	192	464	205	164	401
239	191.20	462.20	204	163.20	399.20
238	190.40	460.40	203	162.40	397.40
237	189.60	458.60	202	161.60	395.60
236	188.80	456.80	201	160.80	393.80
235	188	455	200	160	392
234	187.20	453.20	199	159.20	390.20
233	186.40	451.40	198	158.40	388.40
232	185.60	449.60	197	157.60	386.60
231	184.80	447.80	196	156.80	384.80
230	184	446	195	156	383
229	183.20	444.20	194	155.20	381.20
228	182.40	442.40	193	154.40	379.40
227	181.60	440.60	192	153.60	377.60
226	180.80	438.80	191	152.80	375.80

## COMPARISON OF DIFFERENT THERMOMETERS—continued.

Centigrade or Celsius.	Réaumur.	Fahren- heit.	Centigrade or Celsius.	Réaumur.	Fahren- heit.
+ 190	+ 152	+ 374	+ 155	+ 124	+ 311
189	151.20	372.20	154	123.20	309.20
188	150.40	370.40	153	122.40	307.40
187	149.60	368.60	152	121.60	305.60
186	148.80	366.80	151	120.80	303.80
185	148	365	150	120	302
184	147.20	363.20	149	119.20	300.20
183	146.40	361.40	148	118.40	298.40
182	145.60	359.60	147	117.60	296.60
181	144.80	357.80	146	116.80	294.80
180	144	356	145	116	293
179	143.20	354.20	144	115.20	291.20
178	142.40	352.40	143	114.40	289.40
177	141.60	350.60	142	113.60	287.60
176	140.80	348.80	141	112.80	285.80
175	140	347	140	112	284
174	139.20	345.20	139	111.20	282.20
173	138.40	343.40	138	110.40	280.40
172	137.60	341.60	137	109.60	278.60
171	136.80	339.80	136	108.80	276.80
170	136	338	135	108	275
169	135.20	336.20	134	107.20	273.20
168	134.40	334.40	133	106.40	271.40
167	133.60	332.60	132	105.60	269.60
166	132.80	330.80	131	104.80	267.80
165	132	329	130	104	266
164	131.20	327.20	129	103.20	264.20
163	130.40	325.40	128	102.40	262.40
162	129.60	323.60	127	101.60	260.60
161	128.80	321.80	126	100.80	258.80
160	128	320	125	100	257
159	127.20	318.20	124	99.20	255.20
158	126.40	316.40	123	98.40	253.40
157	125.60	314.60	122	97.60	251.60
156	124.80	312.80	121	96.80	249.80

COMPARISON OF DIFFERENT THERMOMETERS—*continued*.

Centigrade or Celsius.	Réaumur.	Fahren- heit.	Centigrade or Celsius.	Réaumur.	Fahren- heit.
+120	+96	+248	+85	+68	+185
119	95.20	246.20	84	67.20	183.20
118	94.40	244.40	83	66.40	181.40
117	93.60	242.60	82	65.60	179.60
116	92.80	240.80	81	64.80	177.80
115	92	239	80	64	176
114	91.20	237.20	79	63.20	174.20
113	90.40	235.40	78	62.40	172.40
112	89.60	233.60	77	61.60	170.60
111	88.80	231.80	76	60.80	168.80
110	88	230	75	60	167
109	87.20	228.20	74	59.20	165.20
108	86.40	226.40	73	58.40	163.40
107	85.60	224.60	72	57.60	161.60
106	84.80	222.80	71	56.80	159.80
105	84	221	70	56	158
104	83.20	219.20	69	55.20	156.20
103	82.40	217.40	68	54.40	154.40
102	81.60	215.60	67	53.60	152.60
101	80.80	213.80	66	52.80	150.80
100	80	212	65	52	149
99	79.20	210.20	64	51.20	147.20
98	78.40	208.40	63	50.40	145.40
97	77.60	206.60	62	49.60	143.60
96	76.80	204.80	61	48.80	141.80
95	76	203	60	48	140
94	75.20	201.20	59	47.20	138.20
93	74.40	199.40	58	46.40	136.40
92	73.60	197.60	57	45.60	134.60
91	72.80	195.80	56	44.80	132.80
90	72	194	55	44	131
89	71.20	192.20	54	43.20	129.20
88	70.40	190.40	53	42.40	127.40
87	69.60	188.60	52	41.60	125.60
86	68.80	186.80	51	40.80	123.80

## COMPARISON OF DIFFERENT THERMOMETERS—continued.

Centigrade or Celsius.	Reaumur.	Fahren- heit.	Centigrade or Celsius.	Reaumur.	Fahren- heit.
+50	+40	+122	+20	+16	+68
49	39.20	120.20	19	15.20	66.20
48	38.40	118.40	18	14.40	64.40
47	37.60	116.60	17	13.60	62.60
46	36.80	114.80	16	12.80	60.80
45	36	113	15	12	59
44	35.20	111.20	14	11.20	57.20
43	34.40	109.40	13	10.40	55.40
42	33.60	107.60	12	9.60	53.60
41	32.80	105.80	11	8.80	51.80
40	32	104	10	8	50
39	31.20	102.20	9	7.20	48.20
38	30.40	100.40	8	6.40	46.40
37	29.60	98.60	7	5.60	44.60
36	28.80	96.80	6	4.80	42.80
35	28	95	5	4	41
34	27.20	93.20	4	3.20	39.20
33	26.40	91.40	3	2.40	37.40
32	25.60	89.60	2	1.60	35.60
31	24.80	87.80	1	0.80	33.80
30	24	86	0	0	32
29	23.20	84.20	-1	0.80	30.20
28	22.40	82.40	2	1.60	28.40
27	21.60	80.60	3	2.40	26.60
26	20.80	78.80	4	3.20	24.80
25	20	77	5	4	23
24	19.20	75.20	6	4.80	21.20
23	18.40	73.40	7	5.60	19.40
22	17.60	71.60	8	6.40	17.60
21	16.80	69.80	9	7.20	15.80
			10	8	14



TABLE OF THE SOLUBILITY OF SOME MEDICINAL SUBSTANCES IN WATER, ALCOHOL, ETHER,  
CHLOROFORM, GLYCERIN.

s = soluble; sp = sparingly; v = very;  $\infty$  = in all proportions; i = insoluble;  
n = nearly;  $\frac{1}{2}$  = statements various.

One Part is sol. in	Parts of						
	Aq. at 15° C.	Aq. at 100° C.	Alcoh.	Alcoh. boilg.	Ether.	Chlorof.	Glycer.
Acid. Arsenic. . . .	2	—	—	—	—	—	5
„ Arsenios. opaq. . .	80	9	141	sp	—	—	5
„ Benzoic. . . .	500	15	3	1	3·18	s	—
„ Boric. . . .	25	3	15	5	—	—	10
„ Carbollic. anhy. . .	20	$\infty$	$\infty$	$\infty$	$\infty$	$\infty$	$\infty$
„ Chromic. . . .	v s	v s	d	d	—	i	d
„ Citric. . . .	·75	·5	1 $\frac{1}{2}$	·5	n i	n i	$\infty$
„ Gallic. . . .	100	3	4·5	1	39	sp	—
„ Lactic. . . .	$\infty$	$\infty$	$\infty$	$\infty$	$\infty$	n i	—
„ Meconic. . . .	150	d	s	s	—	—	—
„ Oleic. . . .	i	—	$\infty$	$\infty$	$\infty$	$\infty$	—
„ Oxalic. crys. . .	8·71	1	6·8	s	79	i	7·5
„ Phosphoric. . .	—	—	—	—	—	—	—
„ Picric. . . .	i	sp	s	s	s	s	—
„ Pyrogallie. . .	2	—	1·1 R sp	—	—	—	s

TABLE OF THE SOLUBILITY OF SOME MEDICINAL SUBSTANCES IN WATER, ETC.—*continued.*

One Part is sol. in	Parts of						
	Aq. at 15° C.	Aq. at 100° C.	Alcoh.	Alcoh. boilg.	Ether.	Chlorof.	Glycer.
Acid. Salicylic. .. ..	450	14	2·5	v s	1·98	55	195
„ Succinic. .. ..	19	·83	·8	—	79	i	—
„ Sulphuros. .. ..	—	—	—	—	—	—	—
„ Tannic. .. ..	·6	s	·6	v s	100	n i	3
„ Tartaric. .. ..	·7	·5	2·5	·2	250	n i	∞
„ Valerian. .. ..	30(20° C.)	—	∞	∞	—	—	—
Acaciæ Gummi .. ..	s	s	i	i	—	—	—
Aconitina. .. ..	150	50	s	s	s	s	—
Aether .. ..	sp	—	∞	—	—	∞	—
Aether Aceticus .. ..	10	—	∞	∞	∞	—	—
Alcohol Amylic. .. ..	sp	—	∞	∞	∞	—	—
„ Ethyl. .. ..	∞	∞	—	—	∞	∞	∞
Alumen .. ..	10·5	·3	i	i	i	i	2·5
Aluminii Hydras .. ..	i	i	i	i	i	i	i
„ Sulphas. .. ..	1·2	v s	n i	n i	—	—	—
Ammon. Benzoas. .. ..	5	1·2	28	7·6	—	—	—
„ Bromid. ... ..	1·5	·7	150	15	—	—	—
„ Carbonas .. ..	4	d	d	d	i	—	5
„ Chlorid. ... ..	3	1·4	8·3	s	—	—	5
„ Iodid. .. ..	1	·5	9	3·7	—	—	—

TABLE OF THE SOLUBILITY OF SOME MEDICINAL SUBSTANCES IN WATER, ETC.—*continued.*

One Part is sol. in	Parts of						
	Aq. at 15° C.	Aq. at 100° C.	Alcoh.	Alcoh. boilg.	Ether.	Chlorof.	Glycer.
Ammon. Nitras .. ..	•5	—	20	3	—	—	—
„ Phosphas .. ..	4	v s	i	i	—	—	—
„ Sulphas .. ..	1•3	1	sp	sp	—	—	—
„ Valerianas .. ..	v s	v s	v s	v s	—	—	—
Amyl Nitris .. ..	i	—	∞	—	—	—	—
Antimon. Chlorid. ..	d	d	—	—	—	—	∞
„ Oxidum .. ..	n i	n i	i	i	i	i	—
„ Sulphid. .. ..	i	i	i	i	—	—	—
„ Pot. Tart. .. ..	17	3	i	i	—	—	18•2
Apomorph. Hyd.-chlor.	6•8	d	50	d	—	—	—
Argenti Cyanid. .. ..	i	i	i	i	—	—	—
„ Iodid. .. ..	i	i	i	i	—	—	—
„ Nitras .. ..	1½	•5½	26½	4½	—	—	—
„ Oxid. .. ..	n i	n i	i	i	—	—	—
Arsenii Iodid. .. ..	3•5	d	10	d	s	—	—
Atropina .. ..	600	35	8	v s	59•8	3	35
Atrop. Sulphas .. ..	•4	v s	6•5	v s	—	—	3•03
Bals. Peruv. .. ..	i	—	s	—	—	s	—
„ Tolut. .. ..	i	—	s	—	—	—	—
Barii Chlorid. .. ..	2•5	1•5	—	—	—	—	10

TABLE OF THE SOLUBILITY OF SOME MEDICINAL SUBSTANCES IN WATER, ETC.—*continued.*

One Part is sol. in	Parts of						
	Aq. at 150° C.	Aq. at 100° C.	Alcoh.	Alcoh. boillg.	Ether.	Chlorof.	Glycer.
Beberinæ Sulphas ..	s	—	s	—	—	—	—
Benzinum .. .. .	i	i	6	—	∞	∞	—
Benzol .. .. .	v sp	—	s	—	∞	∞	—
Bismuth. Carb. (oxy.) ..	i	i	i	i	i	i	i
„ Citras .. .. .	i	i	l	i	—	—	—
„ et Am. Citras ..	v s	v s	sp	sp	—	—	—
„ Oxid. .. .. .	i	i	i	i	—	—	—
„ Subnitras .. ..	i	i	i	i	—	—	—
Borax .. .. .	16	•5	i	—	—	—	1
Bromoform. .. .. .	v sp	—	s	—	s	—	—
Bromum .. .. .	33	—	■ (d)	—	∞	s	∞
Brucine .. .. .	850	500	v s	v s	—	—	44•4
Butyl-Chloral-Hyd. ..	50	—	1	—	—	n l	1
Caffeina .. .. .	75	9•5	35	v s	■ p s	10	—
Calcii Bromid. .. ..	•7	v s	1	v s	—	—	—
„ Carb. .. .. .	i	i	i	i	i	i	—
„ Chlorid. .. .. .	1•5	v s	s	1•5	—	—	—
„ Hypophos. .. ..	6•8	6	i	i	—	—	—
„ Phosphas .. .. .	i	i	i	i	i	i	—
„ Hydras .. .. .	781	1300	—	—	—	—	s

TABLE OF THE SOLUBILITY OF SOME MEDICINAL SUBSTANCES IN WATER, ETC.—*continued.*

One Part is sol. in	Parts of						
	Aq. at 15° C.	Aq. at 100° C.	Alcoh.	Alcoh. boilg.	Ether.	Chlorof.	Glycer.
Calcil Sulphas .. ..	382	400	—	—	—	—	—
Calx Chlorinata .. ..	part	part	—	—	—	—	—
" Sulphurata .. ..	part	part	—	—	—	—	—
Camphora .. ..	840	—	*83 (80 %)	s	s	s	i
" Monobromata .. ..	n i	n i	v s	v s	—	—	—
Carbonei Bisulphid. ..	i	i	s	—	∞	∞	i
Cerri Oxalas .. ..	i	i	i	i	—	—	—
Cetaceum .. ..	i	i	—	s	s	s	—
Chinoidinum .. ..	n i	—	s	s	part	s	—
Chloral Hydras .. ..	v s	v s	s	s	s	4	s
Chloroformum .. ..	100	—	s	—	∞	—	i
Chrysarobinum .. ..	v sp	—	—	100 R sp	—	—	—
Cinchonid. Sulphas ..	100	4	71	12	s	n i	—
Cinchonina .. ..	n i	n i	110	23	385	40	200
Cinchoninae Sulphas ..	70	14	6	1.5	n i	s	—
Cocaina Hydrochlor. ..	s	—	s	—	s	—	—
Codeina .. ..	80	17	v s	v s	s	—	∞
Creasotum .. ..	sp	—	s	—	s	—	∞
Cupri Acetas .. ..	15	5	135	14	—	—	10
" Nitras .. ..	s	s	s	s	—	—	—

TABLE OF THE SOLUBILITY OF SOME MEDICINAL SUBSTANCES IN WATER, ETC.—*continued.*

One Part is sol. in	Parts of						
	Aq. at 15° C.	Aq. at 100° C.	Alcoh.	Alcoh. boilg.	Ether.	Chl. ref.	Glycer.
Cupri Sulphas .. ..	2·6	·5	i	i	—	—	3·33
Elaterinum .. ..	i	i	125	2	i	s	—
Ferri Chlorid. .. ..	vs	vs	vs	vs	—	—	—
„ Citras .. ..	s	vs	i	i	—	—	—
„ et Am. Citras ..	vs	vs	i	i	—	—	—
„ „ Sulphas ..	3	·8	i	i	—	—	—
„ „ Tartras ..	vs	vs	i	i	—	—	—
„ et K „ ..	vs	vs	i	i	—	—	—
„ „ Quin. Citras ..	s	vs	i	i	—	—	—
„ „ Strych. „ ..	vs	vs	i	i	—	—	—
„ Hypophosphis ..	sp	sp	i	i	—	—	—
„ Lactas .. ..	40	12	ni	ni	—	—	—
„ Oxalas .. ..	sp	sp	i	i	—	—	—
„ Phosphas .. ..	i	i	i	i	—	—	—
„ „ U.S.P. ..	vs	vs	i	i	—	—	—
„ Pyrophos. .. ..	vs	vs	i	i	—	—	—
„ Sulphas .. ..	1·8	·3	i	i	—	—	4
„ Valerianas .. ..	i	d	vs	vs	—	—	—
Glycerinum .. ..	∞	∞	∞	∞	i	i	—
Gutta Percha .. ..	i	i	i	i	—	s	—

TABLE OF THE SOLUBILITY OF SOME MEDICINAL SUBSTANCES IN WATER, ETC.—*continued.*

One Part is sol. in	Parts of						
	Aq. at 15° C.	Aq. at 100° C.	Alcoh.	Alcoh. boilg.	Ether.	Chlorof.	Glycer.
Hydrarg. Chlor. Corr. ..	16	2	3	1·2	4·1	—	13·33
“ “ Mite ..	i	i	i	i	—	—	—
“ Cyanid. ..	12·8	3	15	6	—	—	3·73
“ Iodid. Rub. ..	ni	ni	130	15	—	—	—
“ “ Vir. ..	ni	ni	i	i	—	—	—
“ Oxidum. ..	i	i	i	i	—	—	—
“ Subsulphas ..	i	i	i	i	—	—	—
“ Sulphidum ..	i	i	i	i	—	—	—
“ Ammoniat. ..	i	i	i	i	—	—	—
Hyoscyaminæ Sulphas	vs	vs	vs	vs	—	—	—
Iodoformum .. ..	i	i	80	15	s	s	—
Iodum .. ..	sp	—	11	—	s	s	52·63
Lithii Benzoas .. ..	4	2·5	12	10	—	—	—
“ Bromid. .. ..	vs	vs	vs	vs	—	—	—
“ Carb. .. ..	130	130	i	i	—	—	—
“ Citras .. ..	5·5	2·5	sp	sp	—	—	—
“ Salicylas .. ..	vs	vs	vs	vs	—	—	—
Magnesia .. ..	ni	ni	i	i	—	—	—
Magnesiæ Carb. .. ..	ni	ni	i	i	—	—	—
“ Sulphas .. ..	·8	·15	i	i	—	—	—

TABLE OF THE SOLUBILITY OF SOME CHEMICAL SUBSTANCES IN WATER, ETC.—*continued.*

One Part is sol. in	Parts of						
	Aq. at 15° C.	Aq. at 100° C.	Alcoh.	Alcoh. boilg	Ether.	Chlorof.	Glycer.
Magnesii Sulphis.. ..	20	19	i	i	—	—	—
Manganesii Oxid... ..	i	i	i	i	—	—	—
"      Sulphas ..	·7	·8	i	i	—	—	—
Menthol .. .. .	sp	—	s	—	s	—	—
Morphina .. .. .	v sp	500	100	36	—	60	222
Morphinae Acetas.. ..	12	1·5	63	14	—	—	—
"      Hydrochlor.	24	·5	63	31	—	—	—
"      Sulphas ..	24	·75	702	144	—	—	—
Papaverina .. .. .	—	—	—	—	s	s	—
Paraffin. Dur. .. ..	i	i	ni	ni	s	—	—
"      Moll. .. ..	i	—	i	s	s	s	—
Phosphorus .. .. .	i	i	v sp	v sp	142	—	500
Physostigmina .. ..	sp	sp	s	s	—	—	—
Physostig. Salicylas ..	130	30	12	v s	—	—	—
Picrotoxinum .. .. .	150	25	10	3	—	—	—
Pilocarpinae Hydrochlor.	v s	v s	v s	v s	—	—	—
"      Nitrates ..	9	—	sp	s	—	—	—
Piperina .. .. .	ni	—	30	1	ni	—	—
Plumbi Acet. .. .. .	1·8	·5	8	1	—	—	—
"      Carb. .. ..	i	i	i	i	—	—	—



TABLE OF THE SOLUBILITY OF SOME CHEMICAL SUBSTANCES IN WATER, ETC.—continued.

One Part is sol. in	Parts of						
	Aq. at 15° C.	Aq. at 100° C.	Alcoh.	Alcoh. boilg.	Ether.	Chlorof.	Glycer.
Plumbi Iodid. .. ..	2000	200	v sp	v sp	—	—	—
„ Nitras .. ..	2	·8	n i	n i	—	—	—
„ Oxid. .. ..	1	i	i	i	—	—	—
Podophylli Res. .. ..	i	—	s	—	part	—	—
Potassa .. ..	·5	v s	2	v s	—	—	—
Potassii Acet. .. ..	·4	v s	2·5	v s	—	—	—
„ Bicarh. .. ..	3·2	d	n i	n i	—	—	—
„ Bichrom. .. ..	10	1·5	i	i	—	—	—
„ Bitart. .. ..	210	15	v sp	v sp	—	—	—
„ Bromid. .. ..	1·6	1	200	16	—	—	—
„ Carb. .. ..	1	·7	i	i	—	—	—
„ Chloras .. ..	16·5	2	v sp	v sp	—	—	—
„ Citras .. ..	·6	v s	v sp	v sp	—	—	—
„ Cyanid. .. ..	2	1	sp	sp	—	—	—
„ et Na Tart. .. ..	2·5	v s	n i	n i	—	—	—
„ Ferrocycnd. .. ..	4	2	i	i	—	—	—
„ Hypophos. .. ..	·6	·3	7·3	3·6	—	—	—
„ Iodid. .. ..	·8	·5	18	6	—	—	—
„ Nitras .. ..	4	·4	n i	n i	—	—	—
„ Permangan. .. ..	20	3	d	d	—	—	—

TABLE OF THE SOLUBILITY OF SOME CHEMICAL SUBSTANCES IN WATER, ETC.—*continued.*

One Part is sol. in	Parts of						
	Aq. at 15° C.	Aq. at 100° C.	Alcoh.	Alcoh. boilg.	Ether.	Chlorof.	Glycer.
Potassii Sulphas .. ..	9	4	i	i	—	—	—
„ Sulphis .. ..	4	5	sp	sp	—	—	—
„ Tart. .. ..	·7	·5	n i	n i	—	—	—
Quinidinæ Sulphas .. ..	100	7	6	2	—	—	—
Quinina .. ..	1000	700	6	2	s	s	—
Quinina Bisulph. .. ..	10	vs	32	vs	—	—	—
„ Hydrobrom. .. ..	16	1	3	(1)	—	—	—
„ Hydrochlor. .. ..	34	1	3	vs	—	10	—
„ Sulphas .. ..	740	30	65	3	i	i	24
„ Tannas .. ..	v sp	s	s	s	—	—	200
„ Valerianas .. ..	110	40	5	1	—	—	—
Resina .. ..	i	i	—	s	s	s	—
Saccharum .. ..	·5	·2	178	23	i	i	s
„ Lactis .. ..	7	1	i	i	—	—	—
Salicinum .. ..	23	·7	30	2	—	—	—
Santoninum .. ..	n i	250	40	3	—	—	—
Sodii Acetas .. ..	3	1	30	2	—	—	—
„ Arsenias .. ..	4	vs	v sp	60	—	—	—
„ Benzoas .. ..	1·8	1·3	45	20	—	—	—
„ Bicarb. ... ..	12	d	1	1	—	—	—

TABLE OF THE SOLUBILITY OF SOME CHEMICAL SUBSTANCES IN WATER, ETC.—*continued.*

One Part is sol. in	Parts of						
	Aq. at 150° C.	Aq. at 100° C.	Alcoh.	Alcoh. boilg.	Ether.	Chlorof.	Glycer.
Sodii Bisulphis .. ..	4	2	72	49	—	—	—
„ Bromid. .. ..	1·2	·5	13	11	—	—	—
„ Chloras.. .. .	1·1	·5	40	43	—	—	—
„ Chlorid. .. ..	2·8	2·5	n i	n i	—	—	—
„ Hypophos. .. ..	1	·12	30	1	—	—	—
„ Hyposulphis .. ..	1·5	·5	i	i	—	—	—
„ Iodidum .. ..	·6	·3	1·8	1·4	—	—	—
„ Nitras .. .. .	1·3	·6	sp	40	—	—	—
„ Phosphas .. ..	6	2	i	i	—	—	—
„ Pyrophos. .. ..	12	1·1	i	i	—	—	—
„ Salicylas .. ..	1·5	v s	6	v s	—	—	—
„ Santoninas .. .	3	·5	12	3·4	—	—	—
„ Sulphas .. ..	2·8	4	i	i	—	—	—
„ Sulphis.. .. .	4	·9	sp	sp	—	—	—
„ Sulphocarb. .. .	5	·7	132	10	—	—	—
„ Valerianas .. ..	s	s	s	s	—	—	—
Strychnina .. ..	6700	2500	110	12	v sp	8	—
Sulphur Lotum .. ..	i	i	i	i	—	—	—
Thymol .. .. .	1200	900	1	v s	s	s	120
Veratrina .. .. .	9000	1000	3	v s	s	s	—

TABLE OF THE SOLUBILITY OF SOME CHEMICAL SUBSTANCES IN WATER, ETC.—*continued.*

One Part is sol. in	Parts of						
	Aq. at 15° C.	Aq. at 100° C.	Alcoh.	Alcoh. boilg.	Ether.	Chlorof.	Glycer.
Zinci Acetas .. ..	3	1·5	30	3	—	—	—
„ Bromid. .. ..	v s	v s	v s	v s	—	—	—
„ Carb. Ppt. .. ..	i	i	i	i	—	—	—
„ Chlorid. .. ..	v s	v s	v s	v s	—	—	—
„ Iodid. .. ..	v s	v s	v s	v s	—	—	—
„ Oxid. .. ..	i	i	i	i	—	—	—
„ Phosphid. .. ..	i	i	i	i	—	—	—
„ Sulphas .. ..	·6	·3	i	i	—	—	—
„ Valerian. .. ..	100	—	40	—	—	—	—
„ Sulphocarb. ..	2	—	2	—	—	—	—

NOTE. — This table is derived from several sources, principally from the B.P., the U.S.P., and the Codex Med.; the statements of solubility vary, but usually not to an extent likely to interfere with the use of the table as an aid to the prescriber or dispenser of medicines.

# TABLE SHOWING THE BEHAVIOUR OF ORGANIC SUBSTANCES WITH IMMISCIBLE SOLVENTS.

From Allen's 'Commercial Organic Analysis.'

On agitating the substance with water, acidulated with sulphuric acid, and a suitable solvent immiscible therewith (such as ether, chloroform, amylic alcohol, benzene, or petroleum ether), the following distribution will occur:—

THE ACIDULATED AQUEOUS LIQUID will contain *carbohydrates, soluble alkalis and acids, organic bases, proteids, &c.*, which may be further separated by adding a moderate excess of soda, and again shaking with a suitable immiscible solvent, when there will be obtained:—

## IN THE ALKALINE AQUEOUS LIQUID—

*Carbohydrates*; as sugars, gums, dextrin.

*Soluble Alcohols*; as methyl alcohol, ethyl alcohol, gly-

*Soluble Acids*; as acetic, oxalic, lactic, malic, tartaric, sulphophenic.

*Certain Alkaloids or Organic Bases*; as curarine, urea, glycocine, solanine, and possibly cinchonine, morphine, and pyridine.

*Certain Colouring Matters*; as indigo products.

*Proteids and their Allies*; as albumin, casein, gelatin.

## IN THE IMMISCIBLE LAYER—

*Most Vegetable Alkaloids*; as quinine, strychnine, aconitine, atropine, nicotine, (cinchonine, morphine, the last two with difficulty).

*Coal Tar Bases*; as aniline and its homologues (rosaniline), chrysotoluidine (pyridine), homologues of pyridine.

THE IMMISCIBLE LAYER will contain *hydrocarbons, oils, various acids, resins, coloring matters, phenols, glucosides, &c.*, which may be further separated by agitating the liquid with water containing caustic soda, when there will be obtained:—

## IN THE ALKALINE AQUEOUS LIQUID—

*Fatty Acids*; as stearic, oleic, valeric.

*Various other Acids*, as benzoic, salicylic, phthalic, meconic.

*Acid Dyes and Colouring Matters*; as picric and chrysophanic acids, alizarin, aurin, bilirubin.

*Acid Resins*; as colophony.

*Phenols*; as carbolic and cresylic acids, thymol, creasote.

*Certain Glucosides, &c.*; as santonin, cantharidin, picROTOXIN.

IN THE IMMISCIBLE LAYER—*solid Hydrocarbons*; as paraffin, naphthalene, anthracene.

*Liquid Hydrocarbons*; as petroleum products, rosin-oil, benzene.

*Essential Oils*; as turpentine.

*Nitro-compounds*; as nitrobenzene.

*Ethers and their Allies*; as ether, chloroform, compound ethers, nitro-glycerin.

*Fixed Oils, Fats, and Waxes.*

*Neutral Resins and Colouring Matters.*

*Camphors*; as laurel-camphor, borneol, menthol.

*Alcohols* insoluble or nearly insoluble in water; as amyl and cetyl alcohols, cholesterol.

*Certain Glucosides, &c.*; as santonin, digitalin, santonin.

*Certain Weak Alkaloids*; as caffeine, colchicine, narcotine, piperine, theobromine.

## NOTES ON TESTING FOR OFFICIAL AND OTHER COMMON SUBSTANCES OF DEFINITE CHARACTER. ELEMENTS, ACIDS, BASES, SALTS, ALCOHOLS, ETHERS, ETHERAL SALTS, ETC., ETC.

The reader is presumed to have undergone an ordinary course of instruction in qualitative analysis.

### A. The substance is a liquid.

It is *inflammable*. Ether, Alcohol, Acetic Ether, Carbolic acid (liq.), Amyl Alcohol, Amyl Nitrite, Benzene, Benzoline, Chloroform, Creasote, &c.

It is *limpid*. Most of the above, with the exception of Carbolic acid (liq.), Creasote. Also most of the other liquids.

It is *not limpid*. Glycerine, Conc. Sulphuric acid, White of Egg.

It can be recognised by its *smell*. Such substances as Acetic Ether, Alcohol, Sulphurous acid, Amyl Nitrite, Benzol, Bromine, Chlorine water, Chloroform, Hydrocyanic acid, &c.

It is *coloured*. Bromine, Chlorine water, &c.

It has an *acid reaction*. The usual acids, Acetic, Sulphuric, &c. Also solutions of certain salts.

It has an *alkaline reaction*. Ammonia and other alkalies, most alkaloids, also some salts, as Borax.

It has a *neutral reaction*. Water; or a soln. of some salts of the alkalies, alkaline earths, or of Ag or Mn, of some alkaloidal salts or free alkaloids, neutral principles, &c.

It is *immiscible* with water. Ether, Chloroform, and most of the inflammable liquids, except Alcohol, Carbolic acid.

Evaporate a small quantity to dryness, taking care not to ignite it.

It goes off readily, *leaving no residue*. This at once excludes all fixed substances, such as metallic and alkaline salts.

It *leaves a residue*, but the solvent goes off readily. This shows the solvent to be water, or alcohol, or an ethereal liquid, &c.

*It gives off fumes.* Bromine, &c.

*It gives off heavy vapours.* Carbolic acid, Creosote, &c.

*It decomposes with acid vapours* (Glycerine); or solidifies (Albumen); &c., &c.

If there was a residue on evaporation, repeat this operation and ignite the residue.

*It remains fixed.* Salts of the metals, except As, Hg; or fixed acids, Phosphoric, Boric, &c.

**Note.**—A residue contrg. carbonate after ignition and having an alkaline reaction indicates that the original substance, itself not necessarily alkaline to litmus, was an organic salt of an alkali or alk. earth metal. Blackening on ignition indicates organic matter.

*It disappears.* Salts of Am, Alkaloids, As, Hg, with volatile acids. Solutions of Alkaloids, neutral principles.

**Note.**—The foregoing examination must not be taken as exhaustive, but it gives an idea of the kind of procedure that will be found useful. The operator having by some such means obtained indications of the nature of the liquid, or having excluded a number of bodies according to their want of certain properties, as inflammability, &c., should go on to apply special tests, according to his knowledge of the characters of official substances. These tests must to a great extent be applied spontaneously; to lay down a system would in many cases unduly protract the final identification of the substance.

When a number of substances are mixed together, whether in solution or otherwise, their separation and detection require skill and experience in analysis, especially when the bodies are not bases or acids. In the case of these definite acid and basic substances it is possible to draw out a scheme for their examination.

# Examination of Solids in the Dry Way.

Experiment.	Observation.	Presence of
Heat in a piece of hard glass tube, closed at one end.	The substance—	
	blackens .. .. .	Organic matter.
	becomes—	
	yellow when hot .. .. .	{ Zn.
	white when cold .. .. .	
	yellowish brown when hot .. .. .	{ Pb.
	yellow when cold .. .. .	
	white to yellowish brown when hot .. .. .	{ Sn.
	dirty light yellow when cold .. .. .	
	white to orange when hot .. .. .	{ Bi.
	pale yellow when cold .. .. .	
	brownish red to black when hot .. .. .	{ Fe.
	brownish red when cold .. .. .	
	yellow to dark orange when hot .. .. .	K <sub>2</sub> CrO <sub>4</sub> .
	gives off water, which, if alkaline, indicates Am, if acid, indicates volatile acids.	Water of crystallization, of hydration; or moisture.
	gives off gas or fumes—	
	O <sub>2</sub> , test by splint .. .. .	Peroxides, chlorates, nitrates
	SO <sub>2</sub> , test by odour .. .. .	Sulphates, &c.
	N <sub>2</sub> O <sub>4</sub> , test by colour and odour .. .. .	Nitrates of heavy metals.
	CO <sub>2</sub> , test by drop of lime water on watch-glass	Carbonates, oxalates.
	CO <sub>2</sub> and CO, test by blue flame .. .. .	Oxalates.
	CO, with marked charring .. .. .	Formates.
	Cl <sub>2</sub> , Br <sub>2</sub> , I <sub>2</sub> , test by colour and odour .. .. .	Chlorides, bromides, or
	(CN) <sub>2</sub> , test by odour and crimson flame .. .. .	Cyanides. Iodides.
	SiH <sub>2</sub> , test by odour and formation of PbS .. .. .	Sulphides containing water.



# Examination of Solids in the Dry Way—continued.

Experiment.	Observation.	Presence of
Heat in a piece of hard glass tube, closed at one end.	The substance—	
	gives off gas or fumes—	
	NH <sub>3</sub> , test by odour and turmeric paper ..	Ammonium salts, also cyanides and other nitrogenized matters.
	S <sub>2</sub> .. .. .	Persulphides.
	forms a sublimate of—	
	S <sub>2</sub> { reddish brown drops when hot .. ..	{ Persulphides.
	solid and yellow when cold .. ..	
	I <sub>2</sub> , violet vapour, black sublimate. . . .	I <sub>2</sub> .
	White matter .. .. .	Ammonium salts, HgCl <sub>2</sub> (yellow-hot), Hg <sub>2</sub> Cl <sub>2</sub> , As <sub>2</sub> O <sub>3</sub> (crystals), oxalic acid.
	As <sub>4</sub> black mirror .. .. .	As <sub>4</sub> .
Heat by the reducing flame in a cavity on charcoal.	Hg mirror and globules .. .. .	Hg.
	HgS black (turns red if rubbed) .. .. .	Hg.
	Sb <sub>2</sub> O <sub>3</sub> yellow liquid before subliming, then a sublimate of crystalline needles.	Sb.
	fuses and is absorbed by the charcoal .. ..	Alkaline salts.
	leaves an infusible white residue (if alkaline, Ba, Sr, Ca, Mg).	Ba, Sr, Ca, Mg, Al, Zn, SiO <sub>2</sub> .
	which, moistened with cobalt nitrate, { blue ..	{ Al, SiO <sub>3</sub> , alkaline earthy phosphates.
	and again heated, becomes .. .. { green.	
	deflagrates .. .. . { pink .	
		Zn.
		Mg.
		Nitrates, chlorates.

# Examination of Solids in the Dry Way—continued.

Experiment.	Observation.	Presence of
Heat by the reducing flame in a cavity on charcoal.	The substance— forms an incrustation— white, distant from flame, garlic odour .. white nearer to flame .. .. . yellow when hot, white when cold .. .. faint yellow when hot, white when cold, close to flame. yellow .. .. . dark orange yellow while hot.. .. . lemon yellow when cold .. .. . brownish red or yellow .. .. . dark red (slight) .. .. .	As <sub>4</sub> . Sb <sub>4</sub> . Zn. Sn.  Pb. { Bi <sub>4</sub> . Cd. Ag.
— mixed with KCy and Na <sub>2</sub> CO <sub>3</sub> .	forms metallic beads or scales without incrustation. forms metallic scales, with incrustation, as above — malleable bead .. .. . brittle bead .. .. .	Ag, Au, Cu (beads), Fe, Co, Ni (magnetic scales).  Sn, Pb. Bi <sub>4</sub> , Sb <sub>4</sub> .
Heat a fragment in a bead of microcosmic salt, or of borax. (See Table for beads.)	forms a coloured bead when hot— blue .. .. . green; on cooling, blue; in reducing flame, red green, unaltered in reducing flame .. .. reddish; yellow or colourless on cooling .. amethyst red, colourless in reducing flame .. brownish red; light yellow, on cooling; in reducing flame; yellow, hot; green, cold.	Co. Cu. Cr. Ni. Mn. Fe.

Examination of Solids in the Dry Way—*continued*.

Experiment.	Observation.	Presence of
Heat on a platinum wire with HCl.	The substance—	
	colours the outer flame—	
	yellow .. .. .	Na <sub>2</sub> .
	violet .. .. .	K <sub>2</sub> (observe through cobalt glass).
	crimson .. .. .	Sr.
	brick red .. .. .	Ca.
	green .. .. .	Cu, B.
	blue .. .. .	As <sub>4</sub> , Sb <sub>4</sub> , Pb, Cu.

**Table showing the behaviour of the Metals  
(Common and Rare) with a Borax Bead.**

Contractions: l. q. means large quantity and s. q. small quantity.

Colour of Bead.	In Oxidizing Flame when		In Reducing Flame when	
	Hot	Cold.	Hot.	Cold.
Colourless	Si, Al, Sn, Ba, Sr, Ca, Mg, Gl, Y, Zr, Th, La, Te, Ta, Nb, W, Mo, Ti, Zn, Ol, Pb, Bi, Sb, in s. q., if not yellow.	Si, Al, Sn, Ba, Sr, Ca, Mg, Gl, Y, Zr, Th, La, Te, Ta, Nb, Ti, W, Mo, Zn, Cd, Pb, Bi, Sb, Ag, Fe in s. q.	Si, Al, Sn, Ba, Sr, Ca, Mg, Gl, Y, Zr, Th, La, Di, Mn. Nb in s. q. Ag, Zn, Cd, Pb, Ni, Bi, Sb, Te, on long heat; if not grey and opaque.	Si, Al, Sn, Di, Mn; Ba, Sr, Ca, Mg, Gl, Y, Zr, Th, La, Ce, Ta. Nb in s. q. Ag, Zn, Cd, Pb, Br, Sb, Ni, Te, on long heat; if not grey and opaque. Fe in s. q. Ag, Zn, Cd, Pb, Bi, Sb, Ni, Fe, on short heat; if not colourless. Nb in l. q.
Grey and opaque.	—	—	Ag, Zn, Cd, Pb, Sb, Ni, Fe, on short heat; if not colourless. Nb in l. q.	Fe in s. q. Ag, Zn, Cd, Pb, Bi, Sb, Ni, Fe, on short heat; if not colourless. Nb in l. q.
Pale yellow. Yellow.	Ag, Cd, Zn, in l. q. Ti, W, Pb, Sb, Mo, in l. q. U in s. q.	Ag Va Fe; Co; U.	— Ti in s. q., if not violet-blue Mo in s. q.; if in l. q., brown. W, Va, U	— Mo, in l. q., opaque and brown. W, in l. q., brown.
Reddish yellow. Red. Dark red.	Cr, Fe, in s. q. Ti in l. q. Ce. Fe in l. q.	— — Mn (violet-conn.). Ni	— — Cu	— — Cu
Brownish red. Violet. Blue.	Cr U Mn, Ni, Di Co	Di Co; Cu (greenish white cooling. Cr (yellowish while cooling.	— Co	Ti Co; Cu nearly colourless on long heat. Fe, U, Cr, Va
Green.	Cu	Cr (yellowish while cooling.	Fe, Cr (brownish), Cu, nearly colourless on long heat.	

# Table showing the behaviour of the Metals (Common and Rare) with a Bead of Microcosmic Salt.

Contractions: l. q. means large quantity, and s. q. small quantity.

Colour of Bead.	In Oxidizing Flame when		In Reducing Flame when	
	Hot.	Cold.	Hot.	Cold.
Colourless, with a floating "sketchon."	Al, Sn, Ba, Sr, Ca, Mg, Gl, Y, Zr, Th, La, Nb, Te, in all portions.	Al, Sn; Ba, Sr, Ca, Mg, Gl, Y, Zr, Th, La, Te, Ce, Nb, Ta, Ti, W, Zn, Cd, Pb, Bi, Sb, Fe in s. q.	Al, Sn, Ba, Sr, Ca, Mg, Gl, Y, Zr, Th, La, Ce, Di, Mn; Ta, Ag, Zn, Cd, Pb, Bi, Sb, Ni, Te, on strong ignition; if not grey and opaque.	Al, Sn; Ba, Sr, Ca, Mg, Gl, Y, Zr, Th, La; Ce, Di, Mn, Ta; Ag, Zn, Cd, Pb, Bi, Sb, Ni, Te, on strong ignition; if not grey and opaque.
Grey and opaque.	—	—	Ag, Zn, Cd, Pb, Bi, Sb, Te, Ni.	Fe in s. q. Ag, Zn, Cd, Pb, Bi, Sb, Te, Ni.
Pale yellow.	Sb, Zn, in l. q.	Ag, Fe	—	Fe
Yellow.	Pb in very l. q. Bi, Cd, Ta, Ti, W, in l. q. Ag, Fe, Ni, U, Va; Cr, Fe, in s. q. Cr, Fe, in l. q.	Fe in l. q. Ni in s. q. U (greenish). Va	Tl	Fe (greenish) in l. q.
Reddish yellow.	—	Ni in l. q.	Fe in s. q.; Va	Fe white cooling.
Red.	—	—	Fe (brown)	—
Dark red.	Ni; Fe, Cr in very l. q.	—	Cr, Fe	Cu, opaque
Brownish red.	Mn, Di Co.	Mn, Di Co, Cu (greenish white cooling.	Nb in l. q. Co, W; Nb in very l. q.	Nb, Ti Co, W; Nb in very l. q.
Violet.	—	Mo, U (greenish), Cr (emerald).	U, Mo, Cu	Cr, U, Mo, Va
Blue.	Cu; Mo (yellowish).	—	—	—
Green.	—	—	—	—

## EXAMINATION IN THE WET WAY.

If the substance is not in solution its solubility should be tested.

It is *soluble* in water. Among definite official substances are the following:—All acids except those below. Alum., all simple Am salts, Sb Tart., Ag Nit., As Iod., Bi et Am Citr., Borax, Ca Chlorid., Ca Hypoph., Ca Nitr., Fe et Am Citr., Fe et Quin. Citr., Fe Sulphat., Fe Tart., Hg Perchlor., Li Carb. (spar.), Li Citr., Mg Sulph., Pb Acet., Pb Iod. (hot aq.), Pb Nit., all K compds., all Na compds., Zn Acet., Zn Chlor., Zn Sulpt., Zn Sulphocarb., Zn Valer.; B.P., Al Sulph., Cu Acet., Fe Chlor., Fe Citr., Fe et Am Sulphat., Fe et Am Tart., Fe et K Tart., Fe et Strych. Citr., Fe Lact., Hg'' Cyand., Li Bromid., Li Salyc., Mg Sulphis, Mn Sulph., Zn Brom., Zn Iod.; U.S.P.

It is *insoluble* in aq., but *soluble* in hydrochl. acid. Among definite offic. subst. are:—Acid. Arsenios., Acid. Mecon. (spar. sol. in aq.), Acid. Oleic., Sb Oxid., Antim. Nig., Sb Sulph., Bi Carb., Bi Citr., Bi Oxid., Bi Subnit., Ca Hydras, Ca Phosp., Ca Sulphas, Calx, Ce Oxal., Creta, Fe Arsen., Fe Carb., Fe Peroxid., Fe Phosp., Fe, Hg Oxid. Fl. et Rub., Hg Subchlor., Hg. Ammont., Mg Oxid et Carb., Mang. Oxid. Oxid., Pb Carb. (hot aq.), Pb Oxid. (hot aq.), Zn Carb., Zn Oxid., Zn; B.P. Al Hydras, Bi Subcarb., Ca Carb., Fe Hypophos. (spar in aq.), Fe Oxal. (spar. in aq.), Fe Valer., Hg Subsulph. Fl., Li Benz., Zn Valer. (spar. in aq.); U.S.P., nitric acid. Among definite off. subst. are:—Ag Oxid., Ag, Bi, Hg; B.P. AgCy; U.S.P.

It is *insoluble* in acids. Among off. substances are:—Carbo Liq., S (oxid. on boile.); B.P. AgI, HgS (sol. in aq. regia); U.S.P.

**Note.**—Alkaloids and their salts are not included in the above.

### Examination of the Precipitates formed by the Ordinary Group Reagents in Solutions of the Official (and some other) Metals.

The principal official tests are given in notes, and indicated by \* (B.P.), or by \*\* (U.S.P. only).

**A. Group I.**—*The insoluble chlorides*, i. e.  $\text{HgCl}$ ,  $\text{PbCl}_2$   $\text{AgCl}$ . These metals should have been detected during the preliminary examination, and when one or more of them is present it is necessary to use nitric acid as the solvent, if water does not suffice. In ordinary cases hydrochloric acid is the best solvent. To the *dil.* soln. add  $\text{HCl}$ . If a ppt. falls, filter; preserve filtrate (**B**).

Ppt. Wash with cold aq., rejecting washings; then wash with boilg. aq. Filter.		
Residue conts. $\text{HgCl}$ , $\text{AgCl}$ . Treat with $\text{AmHO}$ ; filter.	Treat	Hot filtrate cont. $\text{PbCl}_2$ . Confirm by the official tests.
*Residue is black, consistg. of $\text{Hg}_2\text{O}$ and $\text{NH}'_2 \text{Hg}'_2\text{Cl}$ . $\text{Hg}'$ is only found here when a mercurous salt is orig. pres., and not then if the solvent is nitric ac.	*Soln. conts. $\text{AgCl}$ . Acidlt. with $\text{HNO}_3$ , the ppt. reappears. * $\text{AgCl}$ darkens on exposure to light.	

**Note.**—\* $\text{Hg}$  salts are vol. at a red heat; the oxy-salts yield the free metal, the halogen salts when \*\*heated with  $\text{Na}_2\text{CO}_3$ . \* $\text{Hg}$ " salts give red or yell. ppt.,  $\text{HgO}$ , with  $\text{NaHO}$ ,  $\text{KHO}$ , or  $\text{CaH}_2\text{O}_2$ ;  $\text{Hg}_2\text{Cl}_2$  becomes black when treated with  $\text{NaHO}$ ,  $\text{KHO}$ ,  $\text{AmHO}$ . \*\* $\text{HgCl}_2$  is sol. in aq. or alcob.;  $\text{Hg}_2\text{Cl}_2$  is not (mode of sep.). \*\* $\text{HgI}_2$  is reduced by  $\text{NaHO}$  + milk sugar. \*\* $\text{Hg}_2\text{I}_2$  added to soln. of  $\text{KI}$  decomp. into  $\text{HgI}_2$  +  $\text{Hg}$ . \*\*Pptd.  $\text{HgO}$  (yell.) forms oxalate on digest. with conc. oxal. acid;  $\text{HgO}$  (red) does not. \*\* $\text{HgCl}_2$  is reduced to  $\text{Hg}$  by  $\text{SnCl}_2$ . \*\* $\text{Hg}$ " salts give black ppt.,  $\text{HgS}$ , with  $\text{H}_2\text{S}$ .

$\text{HgI}_2$  is red, cold; yellow, hot.  $\text{HgO}$  is red, cold; dark, hot.  $\text{Hg}(\text{HgO})_2\text{SO}_4$  (U.S.P.) is yell., cold; red, hot.  $\text{HgS}$  is red, cold; black, hot.

\*Ag salts give white ppt.,  $\text{AgCl}$ , with  $\text{HCl}$  or chlorides.  $\text{Ag}_2\text{O}$  is reduced to Ag by heat, the halogen salts when heated with  $\text{Na}_2\text{CO}_3$ . \*\*Ag salts give black ppt.,  $\text{Ag}_2\text{S}$ , with  $\text{H}_2\text{S}$  or  $\text{Am}_2\text{S}$ . \*\*AgI is insol. in dil. Am carb.;  $\text{AgCl}$  is sol.

\*Pb salts give a yell. ppt.,  $\text{PbI}_2$ , with  $\text{KI}$ ; a white ppt.,  $\text{PbSO}_4$ , with  $\text{H}_2\text{SO}_4$ ; a black ppt.,  $\text{PbS}$ , with  $\text{H}_2\text{S}$ . \*\* $\text{PbO}$  is reduced by heat in pres. of carbon; halogen salts by carbon in pres. of  $\text{Na}_2\text{CO}_3$ .

**B. Group II.**—*The sulphides insol. in HCl.* The filt. from the insol. chlorides or the soln. in which  $\text{HCl}$  gave no ppt. may contain  $\text{Hg}''$ , Pb (which is not entirely pptd. by  $\text{HCl}$ ), Bi, Cu, As, Sb, Sn, Au, Pt. Observe the colour of the liqd.: yell. ind. Au, Pt; blue ind. Cu.

**Note.**—Au and Pt may be conveniently tested for separately.

\*Pt solns. (not too dil.) give yell. ppt., 2  $\text{KCl}$ ,  $\text{PtCl}_4$ , with  $\text{KCl}$ .

\*\*Au salts acidltd. with  $\text{H}_2\text{SO}_4$  give brown ppt., Au, with  $\text{FeSO}_4$ .

*Saturate* the liqd. with  $\text{H}_2\text{S}$ . Filter, preserve filtrate (C). The ppt. (if any) may be black or dark brown, in which case exam. it by Ba; or orange or yell., exam. by Bb. If Cd (unoffic.) is to be tested for, use Ba in either case.

Ba. Dlg. the ppt. with yell. Am sulphid., filter. The filtrate cont. As, Sb, Sn; exam. by Bb. Examine the residue by Ba i.

Ba i. *Residue insol. in yell. Am sulphid.* consists of  $\text{HgS}$ ,  $\text{PbS}$ ,  $\text{CuS}$ ,  $\text{Bi}_2\text{S}_3$ ,  $\text{CdS}$ ; these are all dark coloured (ex.  $\text{CdS}$ , yell.). Wash *well*, and digest with conc.  $\text{HNO}_3$ , dil. with aq.; and if Pb was found in A (not unless), add  $\text{H}_2\text{SO}_4$  and an eq. volume of alcohol. Filter.



Residue conts. HgS, PbSO <sub>4</sub> . Do not mistake a dark clot of S for this residue. Digest with Am acet. (if Pb present).		Filtrate. Boil off alcob. (if any), add AmHO, filter.
Residue is HgS; confirm by off. tests. Au may also be found in this residue.	Soln. Add K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> , a yell. ppt. of PbCrO <sub>4</sub> ind. Pb.	Ppt. consists of BiH <sub>3</sub> O <sub>3</sub> ; dissol. in a few drops HCl and pour into much aq. A ppt. of BiOCl ind. Bi. The filtrate is blue, ind. Cu. Cd is found here by removing blueness with KCy, and passing H <sub>2</sub> S, when yell. CdS is pptd.

Bb. To the soln. of As<sub>2</sub>S<sub>3</sub>, Sb<sub>2</sub>S<sub>3</sub>, SnS<sub>2</sub>, in yell. Am. sulphd., add HCl; the sulphides are repptd. Dig. this ppt., or the *yell.* ppt. orig. given, by H<sub>2</sub>S, with soln. of Am Carb. (B.P. or U.S.P.). Filter.

Residue is Sb <sub>2</sub> S <sub>3</sub> , SnS <sub>2</sub> ; diss. in dil. HCl, Br water, and a little tart. acid; next dissol. oxal. acid in the hot soln. until it crys. out on cooling. Pass H <sub>2</sub> S through the boilg. liq. Filter.	Filtrate. Acidit. with HCl. As <sub>2</sub> S <sub>3</sub> is repptd.
Residue is orange, and consists of Sb <sub>2</sub> S <sub>3</sub> .	Filtrate. Add Am HO in slight excess, then Am <sub>2</sub> S, next slight excess of acet. acid. Allow to stand; SnS <sub>2</sub> is pptd.

**Note.**—Hg and Pb salts—official reactions already given p. 405. \*Bi solns. give insol. basic compds. on dilution; they give black ppt., Bi<sub>2</sub>S<sub>3</sub>, with H<sub>2</sub>S; they give *no* ppt. with AmHO in pres. of citric acid; heated before blowpipe on charcoal oxy-compds. of Bi give yell. Bi<sub>2</sub>O<sub>3</sub>.

\*Cu salts give a maroon red ppt., Cu<sub>2</sub>FeCy<sub>6</sub>, with K<sub>4</sub>Fe Cy<sub>6</sub>; a violet blue coloration with AmHO. \*As compds. in pres. of Zn and H<sub>2</sub>SO<sub>4</sub> or HCl form AsH<sub>3</sub>; \*\*the same gas is formed in pres. of strong NaHO and Al; this gas reduces AgNO<sub>3</sub>, forming Ag, HNO<sub>3</sub>, and AsH<sub>3</sub>O<sub>3</sub>. \*As<sub>2</sub>O<sub>3</sub>

heated on char. evolves an odour of garlic. \*As salts boiled with HCl and Cu give a black coating,  $As_2Cu_3$ ; \*when the metal is heated in a tube *octahed.* crys. of  $As_2O_3$  appear as sublimate. \*As is reduced from its compds. by  $SnCl_2$ .

\*Sb solns. give insol. basic compds. on dilution, these ppts. are sol. in tart. acid. which prevents their formation (\*dissolves Sb compds. generally); Sb is pptd. on boilg. with HCl + Cu; \*\* $Sb_2O_3$  is vol. at a high temp., formg. an *acicular* sublimate. \* $Sb_2S_3$  is sol. in conc. HCl ( $As_2S_3$  is not).

C. *The hydrates and sulphides pptd. by AmHO and  $Am_2S$  from the filtrate from  $H_2S$  or the soln. in which  $H_2S$  gave no ppt.*

**Note.**— $H_2S$  reduces a yell. so'n., contg.  $Fe'''$  salts into a (nearly) colorless soln., and a red or yell. soln. contg.  $CrO_3$  (chromates) into a bluish green soln.; in both cases with pptn. of white sulphur.

Test the original substance for Mn by fusing with  $Na_2CO_3$  and  $KNO_3$ . If an intensely bluish green mass results, Mn is present. Test a portion of the soln. for  $P_2O_5$  (by molybdate of Am); if  $P_2O_5$  is absent proceed directly by Ca, if present use Cb.

Ca ( $P_2O_5$  abs.). To the main volume add AmCl, AmHO, and  $AmS$ ; filter. Preserve filtrate (D). This filtrate conts. Ca, Mg, &c.; also organic matter that would interfere with pptn. of Fe &c. by AmHO in abs. of  $Am_2S$ . In pres. of oxal. acid, Ca, Ba (Sr) pass into the ppt. as oxalates; in order to avoid the disturbance thus introduced, filter off the ppt., dry, and ignite it at a *low* red heat. Dissol. the residue in hot HCl (it efferv. because oxalates have become carbonates) (filter off  $SiO_2$  if necessary), and reppt. with AmHO and  $Am_2S$ , filter and add this filtrate to the filtrate (D).

The ppt. conts.  $Al_2H_6O_6$ ,  $Cr_2H_6O_6$ ,  $CeH_2O_2$ ; FeS, MnS, ZnS ( $NiS$ ,  $CoS$ ). Dissol. ppt. in HCl ( $KClO_3$  necessary only in pres. of Ni, Co) boil off  $H_2S$ , cool, add Br water, then AmHO. Filter.

Ppt. cont.  $\text{Al}_2\text{H}_6\text{O}_6$ ,  $\text{Fe}_2\text{H}_6\text{O}_6$ ,  $\text{CeH}_2\text{O}_2$ ,  $\text{Mn}_m\text{O}_n\text{xAq}$ . Wash ppt., remove it from filter, and boil with  $\text{NaHO}$ . Filter.

Residue. Boil with  $\text{NaHO}$ , and sod. hypochlorite (Liq. Sod. Chlorin.) or Br water, add a few drops of alcoh., boil, filter.

Residue dissol. in  $\text{HCl}$ , add excess of sod. acet. and sod. hypochlor.,† boil, and filter. (In absence of Ce, hypochl. is not necessary).

Ppt. Dissol. a small portion in  $\text{HCl}$ , add  $\text{K}_4\text{FeCy}_6$ , a blue ppt. of 3 Fe  $\text{Cy}_2$ , 2  $\text{Fe}_2\text{Cy}_6$  ind. Fe. ‡Test also for Ce.

Filtrate. Cool, add Br. water, then  $\text{AmHO}$  and boil. A black ppt. ind. Mn.

Filtrate is yell. ind. Cr. and gives with Pb. acet. a yell. ppt. of  $\text{PbCrO}_4$ .

Filtrate. Make acid with  $\text{HCl}$ , then add  $\text{AmHO}$ . A ppt. of  $\text{Al}_2\text{H}_6\text{O}_6$  ind. Al.

Filtrate cont. Zn. Acidlt. strongly with acet. acid, and pass  $\text{H}_2\text{S}$  thro' cold liqd. A white ppt. of  $\text{ZnS}$  ind. Zn.

Ni, Co (un-offic.), are not pptd. in pres. of acet. acid, and remain in soln. here.

† Soln. must not be alkaline, but must contain acet. acid as the only free acid.

‡ Dissol. the ppt. in sulphuric acid, pass  $\text{H}_2\text{S}$  to reduce  $\text{Fe}'''$  to  $\text{Fe}''$ , conc. by evaptn. 'Add a conc. soln. of  $\text{Na}_2\text{SO}_4$ , and sufficient dry  $\text{Na}_2\text{SO}_4$  to saturate the water of soln. Use hot solns.; the Ce falls as a ppt of  $\text{Na}_2\text{SO}_4$ ,  $\text{CeSO}_4$ , while Fe remains in soln.

Note.—In pres. of boric (or hydrofluoric) acid Ca is partially pptd. by  $\text{AmCl}$  and  $\text{AmHO}$ .

**Cb** ( $P_2O_5$  pres.). Add  $AmCl$  and  $AmHO$ . Filter, and to filtrate add  $Am_2S$ . Filter; preserve filtrate (**D**). (In pres. of oxalic acid, dry and ignite the ppt. given by  $AmHO$ , then redissol. and reppt. by  $AmHO$  and  $AmCl$ .) Wash the two ppts. (given by  $AmHO$  and  $Am_2S$ ) separately, digest them together with  $Am_2S$ . Filter.

Ppt. Wash, dissol. in  $HCl$  ( $KClO_3$  reqd. only if  $Ni$ ,  $Co$ , are pres.), add a few drops conc.  $HNO_3$ , boil, and test small portion for  $P_2O_5$  by molybdate. The pres. of  $P_2O_5$  here ind.  $Cr$ ,  $Al$ ,  $Ca$ , ( $Sr$ ),  $Ba$ ,  $Mg$ , as phosphate. To the main volume add  $AmHO$  till nearly neutral (leaving still acid), then  $Br$  water, and excess of sod. acet. Filter.

Ppt. Wash, dissol. in  $HCl$ , add excess of  $NaHO$  in the cold, filter.

Filtrate. Add  $Fe_2Cl_3$  (if no ppt., proceed to  $+$ ) as long as ppt. forms, boil, filter hot.

Ppt. consists of  $Fe_2P_2O_8$  (&  $Fe_2H_6O_6$ ). Confirm as in  $Ca$ .  $Ce$  is found here. See  $Ca$ .

Filtrate. Boil for some time, if ppt., filter.

Ppt. of  $Cr_2H_6O_6$ . Confirm. Filtrate. Add excess of acet. acid. Ppt. of  $Al_2P_2O_8$  (&  $Al_2H_6O_6$ ) ind.  $Al$ .

Ppt. of  $Fe_2P_2O_8$ . Neglect. ( $Fe$  has been added to remove  $P_2O_5$ ).

$\dagger$  Filtrate (now devoid of  $P_2O_5$ ). Add  $AmCl$ ,  $AmHO$ , and  $Am_2S$ .

Ppt. Exam. (by  $Ca$ ) for  $Al$ ,  $Cr$ ,  $Zn$ ,  $Mn$  ( $Ni$ ,  $Co$ ) (&  $Fe$  which was added).

Filtrate. Add  $Am$  carb.

Ppt. Exam. by <b>D</b> for $Ba$ , ( $Sr$ ) $Ca$ .	Filtrate. Add $NaH$ phosph.; a crys. ppt. of $AmMgPO_4$ .
These were pres. as phosphates.	6 Aq. ind. $Mg$ pres. as phosph.

Filtrate. Test with  $MgO$  mixt. for  $P_2O_5$ ; its pres. ind.  $Fe$ ,  $Aln$ ,  $Zn$  ( $Co$ ,  $Ni$ ), as phosphates.

**Note.**—The student must remember that not only Fe, Cr, Al, but also Zn, Mn (Ni, Co), Ca, (Sr), Ba, are pptd. as phosphates by  $\text{AmHO}$ .

\*Fe<sup>II</sup> salts give a light blue ppt.,  $\text{K}_2\text{Fe}''$   
 $\text{FeCy}_6$ , with  $\text{K}_4\text{FeCy}_6$ .  
 \*Fe<sup>III</sup> salts give a blue ppt.,  $3\text{FeCy}_2$ ,  
 $2\text{Fe}_2\text{Cy}_6$ , with  $\text{K}_4\text{FeCy}_6$ .  
 \*Fe<sup>IV</sup> salts give a blue ppt.,  $\text{Fe}''_3\text{Fe}'''_2$

in pres. of  $\text{HCl}$ .

$\text{Cy}_{12}$ , with  $\text{K}_6\text{Fe}_2\text{Cy}_{12}$ .

\*Fe<sup>IV</sup> give no ppt., but a red.-brown

coloration with  $\text{K}_6\text{Fe}_2\text{Cy}_{12}$ .

\*Fe<sup>III</sup> salts give a brown-red ppt.,  $\text{Fe}_2\text{H}_6\text{O}_6$ , with  $\text{NaHO}$ ,  $\text{KHO}$ , or  $\text{AmHO}$ ; tart. acid, citr. acid, sugar, &c., prevent this pptn., or render it incomplete.

\*Fe (metallic) is dissol. by 1 (soln. of, in KI, &c.).

\*\*Fe<sup>II</sup> salts give a white ppt.,  $\text{FeCO}_3$ , with  $\text{Na}_2\text{CO}_3$ ,  $\text{K}_2\text{CO}_3$ ,  $\text{Am}_2\text{CO}_3$ ; ppt. turns red by oxidation.

\* $\text{CrO}_3$  is reduced to  $\text{Cr}_2\text{O}_3$  by heat and by contact with organic matters.  $\text{CrO}_3$  and its salts yield Cl when heated with  $\text{HCl}$ , and are reduced to  $\text{Cr}'''$  salts when heated with acids and reducing agents, as alcohol, sulphites, &c.

\*Al salts give a white ppt.,  $\text{Al}_2\text{H}_6\text{O}_6$ , sol. in excess, with  $\text{NaHO}$ ,  $\text{KHO}$  (same ppt. very slightly sol. in excess with  $\text{AmHO}$ ).

\*Zn salts give a white ppt.,  $\text{ZnH}_2\text{O}_2$ , sol. in excess, with  $\text{AmHO}$ .

\*Zn salts give a white ppt.,  $\text{ZnCO}_3$ ,  $3\text{ZnH}_2\text{O}_2$ , sol. in excess, with  $\text{Am}_2\text{CO}_3$ .

\*Zn salts give a white ppt.,  $\text{ZnS}$ , with  $\text{Am}_2\text{S}$ .

\*\*Zn salts give a white ppt.,  $\text{Zn}_2\text{FeCy}_6 + 3\text{H}_2\text{O}$ , with  $\text{K}_4\text{FeCy}_6$ .

\* $\text{MnO}_2$  evolves O when heated, and gives off Cl when heated with  $\text{HCl}$ .

\*\*Mn salts give a flesh colored. ppt.,  $\text{MnS}$ , with  $\text{Am}_2\text{S}$ .

\*\*Mn salts give a red.-white ppt.,  $\text{Mn}_2\text{FeCy}_6$ , with  $\text{K}_4\text{FeCy}_6$ .

\*\*Mn salts give a brown ppt.,  $\text{Mn}_3\text{Fe}_2\text{Cy}_{12}$ , with  $\text{K}_6\text{Fe}_2\text{Cy}_{12}$ .

\*Ce<sup>IV</sup> salts give a white crys. ppt.,  $\text{CeSO}_4$ ,  $\text{K}_2\text{SO}_4$ , with conc.  $\text{K}_2\text{SO}_4$ .

**D.** *The metals pptd. as carbonates by  $\text{Am}_2\text{CO}_3$ .* To the filtrate from  $\text{AmHO}$  and  $\text{Am}_2\text{S}$ , or to the soln. in which these have given no ppt., add  $\text{Am}_2\text{CO}_3$ ; warm (not boil), filter.

Preserve filtrate **E**. (If  $\text{Am}_2\text{CO}_3$  gives a ppt., it is well to also add a few drops of Am oxal. in order to render the pptn. complete.) Dissol. the washed ppt. in dil. acetic acid, and to the clear soln. add  $\text{K}_2\text{CrO}_4$ . If a yell. ppt.,  $\text{BaCrO}_4$ , appears, filter this off, and confirm Ba by other tests. The filtrate may contain Sr and Ca; add  $\text{AmHO}$ , if no ppt. appears, these are absent. If a ppt. appears, wash it, and then dissol. it in acetic acid, filterg. if necessary. To a small part of this soln. add  $\text{CaSO}_4$ ; if *after a time* no ppt. forms, Sr is absent. In this case add Am oxal. to another portion, a white ppt. of  $\text{CaC}_2\text{O}_4$  ind. Ca. In pres. of Sr, ppt. both Ca and Sr together as sulphates by adding dil.  $\text{H}_2\text{SO}_4$ , and allowing to stand. Lig. the mixed ppts. with conc.  $\text{Am}_2\text{SO}_4$  and a few drops of  $\text{AmHO}$  at a gentle heat; filter. The residue is  $\text{SrSO}_4$ ; confirm by flame test. Test the filtrate for Ca by Am oxal.

**Note.**—\*Ca salts give a white ppt.,  $\text{CaC}_2\text{O}_4$ , with Am oxalate.

**E.** *The metals not pptd. by any of the group reagents.* These are Mg, K, Na, Am. Divide the liquid filtered from **D**, or the soln. in which  $\text{Am}_2\text{CO}_3$  gave no ppt., into two portions.

(1) To this add  $\text{Na}_2\text{HPO}_4$  in the cold and stir; a white crys. ppt.,  $\text{MgAmPO}_4$ , 6 Aq. ind. Mg.

(2) Evap. this to dryness, and test for K, Na and Li by flame reactions. Am must be tested for in the *original substance*.

**Note.**—\*Mg salts give a white crys. ppt.,  $\text{MgAmPO}_4$ , 6 Aq. with  $\text{AmCl}$ ,  $\text{AmHO}$ , and  $\text{Na}_2\text{HPO}_4$ .

\*K salts give a yell. crys. ppt., 2 KCl,  $\text{PtCl}_4$ , with  $\text{PtCl}_4$  and  $\text{HCl}$ .

\*K salts (not too dil.) give a crys. ppt.,  $\text{KH}\bar{\text{T}}$ , with tart. acid or \*\* $\text{NaHT}$ .

\*Na salts impart an *intense* yell. colour to flame.

\*Am salts evolve  $\text{NH}_3$  when heated with  $\text{KHO}$ , and volatilize when heated, only non-volatile acids, if any, being left.

\*Li salts give a white ppt.,  $\text{Li}_3\text{PO}_4$ , with  $\text{Na}_2\text{HPO}_4$  (not with the K salt).

\*Am salts give a brown ppt.,  $\text{NH}_4'''\text{I}$ ,  $\text{H}_2\text{O}$  (or colortn. if in minute traces), with 2KI,  $\text{HgI}_2 + \text{KHO}$ .

## Preliminary Examination for Acids.

Many acidulous radicles may be detected by a preliminary examination. If the substance is in solution, evaporate a portion to dryness.

Treat some of the residue, or a little of the original substance if this is a solid, with dilute HCl, applying heat to promote the reaction.

*(Certain gases may be given off, e.g. :—*

\*CO<sub>2</sub> from Carbonates. The gas renders lime water milky.

\*SO<sub>2</sub> from Sulphites. The gas reduces a yell. soln. of Pot. Chrom., to a green ("'' salt. \*If Zn and HCl be introduced to a soln. of a sulphite, H<sub>2</sub>S is evolved.

\*! SO<sub>2</sub>, with deposition of S from hyposulphites (and mixt. of sulphides and sulphites).

HCy from Cyanides, but not from stable double cyanides, such as ferrocyanides, ferricyanides.

\*Cl from Hypochlorites. The gas liberates I from KI, as shown by a paper containing this body and also starch. The paper turns blue.

\*H<sub>2</sub>S from Sulphides. The gas blackens paper moistened with lead acetate solution.

*Certain acids may separate from the liquid at once or on cooling :—*

\*Benzoic acid from Benzoates. The odour of this acid is observed.

\*Boric acid from Borates. \*Mix the original with H<sub>2</sub>SO<sub>4</sub> and alcohol; set the mixt. on fire, the flame is green.

\*\*Salicylic acid from Salicylates. The crys. washed with cold aq. and added to soln. of FeCl<sub>3</sub> cause a violet coloration.

Meconic acid from Meconates may also separate.

Oleic acid from Oleates. The acid forms an oily layer. Valerianic acid from Valerianates. This also may form an oily layer.

Heat another portion of the residue or the original solid with moderately conc. H<sub>2</sub>SO<sub>4</sub>. Besides the above mentioned—

*Certain gases resulting from decomposition may be evolved, e.g. :—*

CO<sub>2</sub> and CO from Oxalates. The CO burns at the mouth of the tube on application of a flame.

O from  $MnO_2$  and Chromates. The gas causes the reignition of a glowing splint.

$Cl_2O_4$  with explosion from Chlorates.

*Acid vapours may be liberated, e.g. :—*

HCl from Chlorides, HBr from Bromides, HI from Iodides. Acetic acid from Acetates, Valerianic acid from Valerianates. These acids are known by their odour.

HCy from Cyanides and from the decomposition of double cyanides, such as ferrocyanides, &c.

\* $HNO_3$  from Nitrates. \*The introduction of Cu into the liq. causes evolution of NO, which forms  $NO_2$  on mixing with air.

*Blackening may occur in the liquid :—*

\*Organic matter generally, with some exceptions, as oxalic acid. Tartaric, citric, tannic, and gallic acids, also salts of these, cause blackening.

### Further Examination for Acids.

It is now expedient to remove the metallic bases, the nature of which has been determined in the usual manner. Certain of these may sometimes be conveniently removed by pptn. with  $H_2S$ , and the filtrate utilised for the detection of the acid, after removal of the  $H_2S$  by boiling (volatile acids may escape), or by treatment with Br water (when  $H_2SO_4$  is formed from the  $H_2S$ ). The  $H_2S$  may reduce certain acids, as chromic, permanganic, acids. A method more generally useful is by treatment with pure  $Na_2CO_3$ . The substance is boiled for some time with the carbonate, the liq. diluted and filtered. Most bases are in this way removed, either as oxide, hydrate, or carbonate. The filtrate from  $Na_2CO_3$  is divided into four portions—

(1) *A portion is acidulld. with HCl, and test solns. added to small. separate portions.*

\* $BaCl_2$  ppts. white  $BaSO_4$  from Sulphates. To the filtrate from this ppt. add Cl (or Br) water. If a further ppt. of  $BaSO_4$  occurs, \*Sulphites are indicated.

\* $Fe_2Cl_6$  ppts. blue  $3Fe''CY_2$ ,  $2Fe'''_2CY_6$  from Ferrocyanides.

\* $Fe_2Cl_6$  gives a brownish colortn. with Ferricyanides. Confirm by addg.  $FeSO_4$  when \*blue  $Fe''_3Fe_2CY_{12}$  is pptd.

\* $Fe_2Cl_6$  gives a blood-red colortn. with Meconates.

\* $Fe_2Cl_6$  gives a bluish-black colortn. with Tannates.



\* $\text{Fe}_2\text{Cl}_6$  gives a purple-black colortn. with Gallates.

\* $\text{Fe}_2\text{Cl}_6$  gives a red.-violet colortn. with Salicylates.

\*(Carbolic acid only with neutr.  $\text{Fe}_2\text{Cl}_6$ .)

**Note.**—\*Tannic acid ppts. gelatin; \*gallic acid does not.

(2) *A portion is acidul'd. with  $\text{H}_2\text{NO}_3$ , and test solns. added to separate small portions.*

\* $\text{AgNO}_3$  ppts. curdy white  $\text{AgCl}$  from Chlorides.

\* $\text{AgNO}_3$  ppts. curdy yell.-white  $\text{AgBr}$  from Bromides.

\* $\text{AgNO}_3$  ppts. curdy yell.-white  $\text{AgI}$  from Iodides.

\* $\text{AgNO}_3$  ppts. curdy white  $\text{AgCN}$  (sol. in excess of cyanide) from Cyanides.

$\text{AgNO}_3$  also gives ppts. with Ferrocyanides and Ferri-cyanides.

**Note.**—On treatment with  $\text{Cl}$  both \*bromides and \*iodides are decomposed, yielding  $\text{Br}$  and  $\text{I}$  respectively; chlorfm., if shaken with the liqd., dissolves the  $\text{Br}$  to a red soln. Both  $\text{Cl}$  and  $\text{Br}$  liberate  $\text{I}$  from iodides, and the resulting mixture \*turns starch paste blue.  $\text{Cl}$  (also  $\text{Br}$  and  $\text{I}$ ) is liberated by  $\text{H}_2\text{SO}_4 + \text{MnO}_2$ , and the gas turn-paper contg. starch and  $\text{KI}$  blue.  $\text{CuSO}_4$  and  $\text{FeSO}_4$  in solution together ppt.  $\text{Cu}_2\text{I}_2$  from iodides. Nitrites in pres. of dil.  $\text{HCl}$  liberate  $\text{I}$  from iodides, but not  $\text{Br}$  from bromides. Chlorides mixed with a chromate (both dry), and heated with conc.  $\text{H}_2\text{SO}_4$ , evolve  $\text{CrO}_2\text{Cl}_2$ , which distils; if the distillate be treated with water, chromic and hydrochloric acid are formed, and the presence of *chromic* acid indicates the chloride. Bromides and iodides under the same circumstances simply evolve  $\text{Br}$  and  $\text{I}$ , but no volatile chromium compound. \* $\text{AgI}$ s (almost) insol. in  $\text{AmHO}$ .  $\text{AgCN}$  yields metallic silver (sol. in  $\text{HNO}_3$ ) upon ignition;  $\text{AgCl}$ ,  $\text{AgBr}$ ,  $\text{AgI}$  are not decomposed by ignition. These reactions afford means of distinguishing between the various salts. The cyanogen acids are most conveniently detected in a  $\text{HCl}$  solution.

(3) *A portion is acidul'd. with acetic acid, and test solns. added to separate small portions.*

$\text{Fe}_2\text{Cl}_6$  ppts. whitish or yell.-white  $\text{Fe}_2\text{P}_2\text{O}_8$  from Phosphates. Arsenic acid also ppts. if pres., and must previously be removed by  $\text{H}_2\text{S}$ .

$\text{Pb}$  acetate ppts. yellow  $\text{PbCrO}_4$  from Chromates.

$\text{CaSO}_4$  ppts. white  $\text{CaC}_2\text{O}_4$  from Oxalates. Confirm by igniting the ppt. when it becomes  $\text{CaCO}_3$ , and dissolves in acet. acid with effervescence.

(4) *A portion is rendered neutral to litmus, and test. solns. added to separate small portions.*

\* $\text{AgNO}_3$  ppts. yell.  $\text{Ag}_3\text{PO}_4$  from Phosphates.

$\text{CaCl}_2$  ppts. white  $\text{CaC}_2\text{H}_4\text{O}_6$ , 4Aq from Tartrates, and gives ppts. with other salts.

$\text{CaCl}_2$  ppts. white  $\text{Ca}_3(\text{C}_6\text{H}_5\text{O}_7)_2 + 4\text{Aq}$  from Citrates, after additn. of lime water, or  $\text{AmHO}$ , and boiling. \* $\text{CaH}_2\text{O}_2$  alone does the same on boiling.

**Note.**—\*Tartaric acid when alone in pres. of citric may be detected by addg. pot. acetate when  $\text{KH}$  tartrate is thrown down. If the ppt. thrown down by  $\text{AgNO}_3$  in a neutr. soln. be filtered off and dissol'd. in  $\text{AmHO}$ , the soln. after heating to about  $70^\circ$  for 10 min., deposits a brilliant mirror. Citric acid similarly treated gives an imperfect mirror, and then only after long boiling. These acids are indicated by an odour of burnt sugar during the preliminary exam. for bases.

$\text{CaCl}_2$  gives a white ppt. from Borates.

\* $\text{Fe}_2\text{Cl}_6$  ppts. pale yell. basic  $\text{Fe}$  benzoate from Benzoates.

**Note.**—If  $\text{Mn}$ ,  $\text{Cr}$ ,  $\text{As}$ ,  $\text{Sb}$ , have been detected among the bases, the acids which these elements form should be looked for.

\*Permanganates are known by their purple solns., and the ease with which alcohol reduces them.

Arsenites in neutr. solns., or \* $\text{As}_2\text{O}_3$  in aq. soln., give a yell. ppt. of  $\text{Ag}_3\text{AsO}_3$  with ammonio-nitrate of  $\text{Ag}$ .

\*Arsenates give a brick-red ppt. of  $\text{Ag}_3\text{AsO}_4$  with  $\text{AgNO}_3$ .

## Colour Reactions.

In testing for the official alkaloïds and neutral principles, colour reactions are of considerable importance, and a number are given in the pharmacopœias.

The official colour reactions may conveniently be applied as in the following scheme. A few colour reactions which are not official, and a few other official tests, have been added for convenience. These are indicated by an asterisk. Substances in italics are official in the U.S.P. only.

## With Sulphuric Acid.

(A) Place a small portion of the substance upon a piece of white porcelain (or testing tile), and drop upon it a little conc. sulphuric acid.

(a) (1) No colour, or only a slight yellowish discoloration, is produced.

\*Aconitine, Atropine, \*Caffeine, Codeine, Cinchonidine, Cinchonine, Cocaine, Morphia, Quinine, Quinidine, Strychnine, are indicated.

(2) It becomes *yellow* changing to *red* Elaterin.

If no colour appears, the porcelain is gently warmed.  
(3) The mass becomes deep brown, and finally *violet*\* .. .. . Aconitine.

(4) The mass *chars*.. .. . Cocaine.

(b) A coloration is produced.

(1) A *red* colour, with *green fluorescence* .. .. . Veratrine.

(2) A *dark blood-red* soln., becoming colourless on dilution.. .. . *Piperine*.

(3) A *yellow* colour .. .. . Pilocarpine.

(4) A *golden-yellow*† .. .. . Picrotoxin.

(5) A *yellow* colour, changing to *green* Physostigmine.

(6) An *orange-red* colour .. .. . ‡Chrysarobin.

(7) A *red* colour .. .. . Salicin.

(B) The operation is repeated, with the addition of a *minute* crystal of potassium bichromate.

(1) A *violet* colour passing through *red* to *yellow* .. .. . Strychnine.

(2) An *emerald-green* colour .. .. . Pilocarpine.

(3) A *greenish* colour\* .. .. . Morphine.

(4) A *violet-red* .. .. . Picrotoxin.†

(5) A *yellow resin* on heating\* .. .. . Bebeine.

**Note.**—Heated with a few drops of  $H_2SO_4$ , a little bichromate, and some water, it yields the vapours of an oil smelling of meadow-sweet .. .. . Salicin.

(C) The operation is repeated, with the addition of a little arseniate of sodium, and warming.

A *bluish* tinge .. .. . Morphine.

(D) The operation is repeated, using a 1%

† Mixed with three times its weight of  $KNO_3$ , moistened with sulphuric acid, and then treated with strong soln. of NaHO in excess, picrotoxin assumes a *brick-red* colour of short duration.

‡ Not a pure active principle.

soln. of sodium molybdate in conc. sulphuric acid (Fröbde's reagent).

- (1) A *violet* colour, passing to *blue* and *dirty green* .. .. .  
 (2) A *deep green* to *violet* colour\* .. ..  
 (3) A *blue* colour (*dirty green* to *blue* and *yellow*, U.S.) .. ..

Morphine.  
 Apomorphine.

Codeine.

**Note.**—Also a blue with conc.  $\text{H}_2\text{SO}_4$  and  $\text{Fe}_2\text{Cl}_6$  with Codeine.

**Note.**—With melted carbolic acid the substance yields a soln. which, on the addition of sulphuric acid, acquires a *crimson* colour, rapidly changing to *scarlet* .. ..

Elatrin.

### With Nitric Acid.

(a) It remains colourless .. .. .

Quinine, Quindine, Strychnine.

(b) It becomes coloured.

(1) It becomes *yellow*, but *not red* ..

Codeine, Veratrine.

**Note.**—Veratrine may be distinguished by the colour tests already applied, and by the fact that when warmed with hydrochloric acid it dissolves with *blood-red* tint.

(2) It becomes faintly *greenish-violet*..

(3) It becomes *orange-red* .. .. .

(4) It becomes *blood-red*.. .. .

(5) It becomes *greenish-yellow*, orange,

and red, and gradually dissolves with

a *reddish* colour. On adding to this

soln. excess of soln. of  $\text{KHO}$  the

colour is at first pale yellow, but on

boiling it deepens to *blood-red*, giving

off alkaline vapours of the peculiar

odour of piperine.. .. .

Piperine.

### With Potassium Chlorate.

Add a crystal of  $\text{KClO}_3$  and a few drops of  $\text{HCl}$  to a little of the substance, and evap. to dryness in a porcelain dish.

A *reddish* residue results, which becomes *purple* when moistened with soln. of ammonia .. .. .

Caffeine.

## With Alkalies.

- (A) Add sod. bicarb. to a soln. in aq. A ppt. appears, which turns *green* on standing, and then forms a *purple* soln. with ether, *violet* with chloroform., and *bluish green* with alcohol . . . . .
- (B) Warm or shake an aq. soln. with dilute soln. of KHO. . . . .

Apomorphine.

- (1) It becomes *red*, and when evapd. to dryness, leaves a *bluish* residue, the acidified soln. of which is *dichroic* (blue and red) . . . . .

Physostigmine.

- (2) It forms a *yellowish* to *reddish fluorescent* soln., which becomes *carmine* by absorption of oxygen from the air . . . . .

†Chrysarobin.

- (C) Added to warm alcoholic soln. of KHO it gives a *violet-red* colour. . . . .

Santonin.

- (1b) Warm a little of the substance with soln. of KHO. . . . .

Atropine, Hyo-

scyamine.\*

Ammonia is evolved (from decomposition) . . . . .

(Am salts of course give a similar reaction.)

## With Perchloride of Platinum.

A soln. of the substance is treated with test soln. of Pt Cl<sub>4</sub>.

No ppt. results. . . . .

Atropine, Hyo-

scyamine.

(Other alkds. for the most part give ppts.)

**Note.**—A soln. of AuCl<sub>3</sub> yields with these alkds. a precipitate which, when recrystallised from boilg. aq. acidfld. with HCl, is deposed. on coolg. (rendering the liqd. turbid) in minute cryst., forming a dull lustreless powder on drying (atropine), or is deposited on coolg. (liquid not rendered turbid) in brilliant lustrous scales (hyoscyamine).

† Not a *pure* active principle.

**Fluorescence.**

The substance is dissolved in dilute sulphuric acid.

- (1) It is *fluorescent*. . . . . Quinine, Quindine.  
 (2) It is *not decidedly fluorescent* . . Cinchonidine, Cinchonine.

**The Thalleioquin Test.**

A soln., made as nearly neutral as possible, is treated with chlorine or bromine water, and then with excess of ammonia.

- (1) A *green* ppt. or colortn. is produced. Quinine, Quindine.  
 (2) No green ppt. or colortn. results. Cinchonidine, Cinchonine.

**With Soda Tartarata.**

An aq. soln. is treated with a soln. of pot. sod. tart. (liqds. not too dilute).

- (1) No ppt. is produced. . . . . Cinchonine.  
 (2) A ppt. is produced . . . . . Cinchonidine.

**Note.**—The actn. of the sulphates of these two alkds. in aq. soln. may be examined by a polariscope; cinchonidine rotates to the left, cinchonine to the right.

**General Examination of Animal Secretions.**

Observe colour, taste, odour, reaction, sp. gr., &c. Filter off any insol. matter through paper or muslin, and examine microscopically.

- (1) Take a portion of filtrate, make faintly acid (with acetic), and beat.

A ppt. occurs; *Albumin*, or *phosphates* of Ca, Mg.

(a) Albumin is not dissol. by adding HCl, but on boillg. forms a *violet* solution.

(b) Phosphates of Ca, Mg, are sol. in HCl. Examine ppt. by microscope, &c.

**Note**—If coagulum is reddish, dry a portion, and treat with alcob. contr. a little  $H_2SO_4$ ; if alcob. becomes red, and its ash cont. *Fe, hæmatin* is present.

- (2) The filtrate from (1) or original liquid if no ppt.—Divide into portions, A, B, C, &c.

A. Mix a portion with pot. ferrocyanide solution.

A ppt. occurs; *casein* and *globulin*.

(a) Mix another portion with  $\text{CaCl}_2$  soln., and boil. Turbidity indicates *casein*.

(b) Mix another portion with acetic acid, and then add ammonia. A flaky ppt. indicates *globulin*.

B. Add acetic acid to a portion.

A ppt. occurs; *pus*, *mucus*, *chondrin*.

A portion mixed with  $\text{HgCl}_2$  soln. gives a ppt.; *pus* is ind. If  $\text{HgCl}_2$  gives merely a turbidity; *mucus* or *chondrin* may be present. *Chondrin* forms a jelly on concentrating a portion of the liquid; confirm by special tests.

(b) Filtrate or liq. from B. concentrate a portion and cool; a jelly indicates *gelatin*. Confirm by addg.  $\text{HgCl}_2$  to another portion; a ppt. confirms *gelatin*.

(3) (C) Concentrate to  $\frac{1}{4}$  or  $\frac{1}{3}$  and cool.

A ppt. occurs; *Urates*, *Ca sulphate*, *Mg phosphate* (*benzoic acid*, *calcic hippurate*, *tyrosin*, *allantoin*; these are crys.).

Ppt. under microscope is amorph., but on adding acetic acid is seen to become crys.; *uric acid* is indicated.

Ppt. is crys., and acetic acid does not alter it; *Ca sulphate*, *Mg phosphate*. Examine by ordinary tests.

(4) The filtrate from C is evapd. to a *syrup*, and left to stand for a considerable time.

Crystals occur: *creatinine*, *creatinine*, *glycocine*, *leucine*, *allantoin*, *taurine*, *sarcosine*, *inositol*, *alkalin' hippurates*; inorganic salts.

The crys. must be separated from the syrup by draining, &c., and tested as to whether organic or inorganic. If organic, examine for N, S, and P as a guide to further special examination. If inorganic, test by usual methods. Mineral salts of organic acids form an ash consistg. of carbonates.

(5) The syrup from (4) if no crystals, or the drainings from the crys., is evapd. to dryness on water-bath, and residue extracted with alcob. (sp. gr. .83).

*Residue* may contain *mucus*, *extractive matters*; a little *casein*, *uric acid*, &c.

*Solution*.—Divide into portions, a, b, c.

(a) Concentrate and divide into portions, 1, 2, 3 (a large portion), 4.

(1) Add syrupy  $\text{ZnCl}_2$ , and allow to stand. A ppt. indicates *creatinine* (and creatine in presence of creatinine).

(2) Dilute with water, and add *fuming* nitric acid drop by drop. A zone successively green, blue, violet, red, yellowish indicates *biliary colouring matter*.

(3) Mix with nitric acid, quite free from nitrous acid, and place vessel in a cooling mixture. A deposit of crys. Indicates *urea* (as nitrate), *hippuric* or *benzoic* acid. It may consist of alkaline nitrates.

Examine by microscope and chemical tests.

(4) If the alcoholic extract has a strong acid reaction, a little of the conc. extract is boiled with  $\text{ZnO}$  and filtered; a drop is placed on a slide and examined by microscope for crystals of lactate of zinc, indicating *lactic acid*.

(b) Examine for *biliary acids* by Pettenkofer's test, p. 423.

(c) Examine for sugar by Fehling's test, p. 428.

(6) A portion of the *original* is evapd. to dryness, extracted with ether, and the ether extract evapd. for *fats*.

(7) The portion of residue insol. in ether is burnt to ash, and examined for *inorganic salts*.

## Examination of Calculi.

A calculus is any kind of concretion found in a duct or passage of a glandular organ, but the term has by some been restricted to calculi connected with the urinary system. The general character of these concretions may be gathered from the following summary.

**Biliary Calculi** or gall-stones. — *Size*: small grains to masses of more than an ounce. *Shape*: round or oval when solitary; when numerous, more or less faceted from compression. *Colour*: blackish-green or brown, sometimes yellow or yellowish-white. *Consistence*: soft; or hard, dry, and friable. *Composition*: gall-stones consist almost entirely of cholesterolin and bile pigments, sometimes containing as much as 50 % of the first named constituent. The bile pig-



ments are sometimes present in an uncombined condition, sometimes united with lime. Lime salts of the bile acids in small quantity, and lime salts of the fatty acids are found, also carbonate and phosphate of lime, but not often in large quantity. Other constituents are copper, iron, and manganese, which are found in nearly all gall-stones. In examining a biliary calculus, first make a determination of the ash and of the inorganic matters, acids ( $\text{CO}_2$ ,  $\text{P}_2\text{O}_5$ , &c.), and bases (Ca, Fe, Mn, Cu, &c.) that compose it. Afterwards powder another portion, and exhaust with ether, which upon evaporation yields cholesterol in an amorphous form. The cholesterol may be obtained in the characteristic glistening rhombic plates (insol. in Liq. Potass.) by dissolution in hot alcohol, and cooling of the solution. The residue should next be exhausted successively with water, alcohol, and dilute hydrochloric acid; it is now dried, and exhausted with chloroform, and the chloroform extract concentrated nearly to dryness. The addition of several volumes of alcohol now produces an orange-red precipitate of bilirubin, which is insol. in water and ether, but slightly sol. in alcohol. Bilirubin is sol. in alkalies to yellow or orange solutions, which turn green, owing to formation of biliverdin, when submitted to a current of air. If to the alkaline solution is added an equal volume of alcohol, and then fuming nitric acid containing nitrous vapours it becomes successively green, blue, violet, and red, passing finally to yellow again.

An alcoholic extract of the calculus contains the biliary acids. The solution has a bitter taste, and should be evaporated to dryness, and the residue dissolved in a little water. One drop of sugar solution (1 in 4 pts. aq.) is then stirred in, and pure strong  $\text{H}_2\text{SO}_4$  added in small quantities at a time until the turbidity at first formed disappears, cooling after each addition. A transient yellowish tint at first appears, changing subsequently and successively to pale cherry-red, deep carmine, purple, and intense violet. In applying this test (Pettenkofer's) an excess of sugar must not be used (or the liquid chars), and the temperature must be kept at about  $50^\circ \text{C}$ ., but not higher.

**Intestinal Calculi** are not common in man; they are sometimes met with in the case of persons who eat oatmeal largely, and then consist of hairs and fragments of the oat encrusted with calcium phosphate and carbonate. The

habitual use of magnesium carbonate may also give rise to concretions in the bowels.

**Pancreatic Calculi** are very rare; when found they are usually of oval shape, with a worm-eaten appearance upon the surface, which is of whitish colour, and acquires an enamel-like lustre when rubbed. The fracture is white, and glistens somewhat like porcelain. Analysis has shown one sample to contain 24% of organic matter, and 76% of inorganic, chiefly calcium carbonate, with a little phosphate.

**Prostatic Calculi** consist essentially of calcium carbonate and phosphate, small quantities of uric acid, calcium oxalate, and ammonium-magnesium phosphate may be present.

**Salivary Calculi** consist chiefly of calcium carbonate with traces of phosphate.

**Urinary Calculi** vary considerably in size, shape, and colour. They may contain calcium oxalate, calcium phosphate, magnesium phosphate, ammonium-magnesium phosphate, calcium carbonate, uric acid, urates, cystine, xanthine, blood, fatty substance, &c.

## A General Method for the Examination of Animal Calculi.

Subject a portion of the calculus in the state of powder to the action of the air at a red heat.

(A) It burns away, leaving little or no ash. Absence of mineral matters in more than traces. Probable presence of cholesterolin, biliary colouring matters, fibrin, albumin, uric acid, Am urate, Am hippurate, cystine, or xanthine.

(a) A portion is treated with conc.  $\text{HNO}_3$ , the soln. evaporated to dryness, and the residue treated with a drop of Liq. Ammoniac (Murexide test).

(1) A *purple-red* is produced. Uric acid or Am urate.

(Am must be tested for by shaking up with  $\text{KHO}$ .)

(2) No *purple-red* is produced, but  
(a) The nitric acid soln. becomes *yellow* during evapn., and leaves a residue insol. in soln. of pot. carb. Xanthine.

( $\beta$ ) Or the nitric acid soln. becomes dark brown on evapn., and leaves a residue which dissol. in Liq. Ammon. to a soln. which deposits microscopic hexagonal plates of cystine.

(b) A portion is treated with Liq. Potasse.

(1) It dissolves and is reprecipitated by acetic acid, but redissolves by excess of the acid to a soln. which gives a precipitate with K ferrocyanide. Fibrine.

(2) It dissolves to a dark brown soln., which with nitric acid gives the colour reactions of biliary colouring matters, v. p.

(c) A portion is treated with boilg. alcohol.

(1) It is crystalline and dissolves, giving reactions of cholesterolin, v. p.

(2) The soln. has a bitter taste, and with Pettenkofer's test gives the reactions of biliary acids, v. p.

NOTE.—Calculi contg. fibrine and biliary acids and colg. matters evolve the odour of calcined animal matters on ignition.

(B) It is almost entirely fixed (absence of organic matters), or it burns away only partially (Na or Ca urate, &c.).

(a) It does not contain uric acid, v. sup.

(1) The residue after ignition melts easily. It is fusible calculus, consisting of Ca phosphate, with Am Mg phosphate, &c.

(2) The residue after ignition does not melt.

(a) The residue is neutral to litmus paper. Ca phosphate. Apply the ordinary tests.

( $\beta$ ) The residue is alkaline to litmus. Ca oxalate or carbonate. Apply the ordinary tests.

(b) It contains uric acid.

(1) It melts on ignition, colouring the flame yellow, Na urate; or violet, K urate.

(2) It does not melt on ignition, but yields a residue which dissolves in acid with effervescence, and is either  $\text{CaCO}_3$  from Ca urate, or Mg carb. from Mg urate. Apply the ordinary tests for these metals.

The results of the examination by this scheme should now be confirmed by other reactions of the bodies detected.

### The Examination of Urine.

*Deposit.*—Healthy urine is clear when passed, but after a time deposits a light flocculent precipitate consisting of mucus and epithelial cells. A deposit of oxalate of lime occurs in some instances, but more often an abnormal deposit consists of urates or phosphates. In order to distinguish between these it is only necessary to warm the urine, when the deposit dissolves in case of urates, but persists when it is due to phosphates. A cloudiness caused by phosphates is removed by the addition of a few drops of acetic acid. Mucus and pus also cause deposits, but these are not removed by acidulation. The presence of albumin distinguishes a turbidity due to pus from one due to mucus; in the former case the cloudiness is increased by the addition of soln. of pot. ferrocyanide to the acidulated urine, while in the latter case there is no increase of turbidity. In order to distinguish between a deposit due to pus and one caused by mucus in albuminous urine, the urine is allowed to subside, and the clear portion decanted. The sediment is then submitted to the action of a small piece of caustic potash; if on stirring it becomes mucilaginous, pus is present; a sediment of mucus remains thin.

*Colour.*—Urine may be pale, normal, high coloured, or dark when viewed in a glass vessel 3 or 4 inches in diameter; normal urine under these circumstances appears golden to orange yellow. Dark urine is usually caused by bile, hæmoglobin, or blood; bile imparts a brown or greenish tint, and the two latter cause various shades of blood-red or coffee colour. With pus present in large amount in strongly alkaline urine the colour may be greenish-brown; carbolic acid or creasote also cause dark urine, and in cases of melanotic cancer, the urine, normal at first, may become dark from oxidation upon standing.

*Specific Gravity.*—This may be ascertained by the urinometer (a special form of hydrometer), or by the sp. gr. bottle. The sp. gr. of normal urine, determined at 60° F., varies between 1020 and 1025, the average being about 1020. The whole quantity passed should be well mixed in taking a sample for this test.

*Action.*—Healthy urine is usually acid, but may be neutral or even alkaline after a meal, or after the taking of alkaline medicines. After standing some time the reaction

becomes alkaline. Alkalinity due to ammonials distinguished from that due to fixed alkalis by the blueness of the test-paper disappearing upon drying. When ammonium carbonate is the cause of alkalinity ammonia gas is evolved on boiling with a few drops of Liq. Potassæ. Sometimes the reaction of urine is amphoteric (turning both red and blue litmus).

*Normal Constituents of urine* are (1) *nitrogenous bodies*—urea, uric acid, allantoin, oxaluric acid, xanthine, kreatinine, sulphocyanic acid, &c.; (2) *ferments*—pepsin, ptyalin; (3) *salts*—silicates, phosphates, sulphates, chlorides, of K, Na, Ca, Mg, Fe; (4) *acids*—oxalic, lactic, glycerophosphoric (?), sulphuric, ether-sulphuric acids; and (5) *pigments* and *chromogens*.

*Abnormal constituents* are albumins, blood, hæmoglobin, methæmoglobin, bile-pigments, biliary acids, glucose, lactose, leucin, tyrosin, cystin, Ca oxalate, &c.

The *total solids* are found by evapn. and weighing of dried residue, or approximately by multiplying last two figures of sp. gr. by 2.33 (= pts. per 1000). *Urea* is determined by treating 5 c.c. of urine with 40 or 50 c.c. of fresh hypobromite soln. (NaHO 100 p., aq. 250 p., addg. Br 25 p. when cold). The evolved N gas gives the urea. *Uric acid* may be determined by acidg. with  $\frac{1}{10}$  vol. hydrochl. acid, collecting and weighing deposit after 24 hours (on weighed filter); or the deposit may be boiled with PbO<sub>2</sub> and aq., and the N estimated by hypobromite ( $N \times 3 = \text{uric acid}$ , adding .0045 G. per 100 c.c. of urine taken).

Uric acid may also be determined by pptg. as zinc urate (after previous removal of phosphates with Liq. Soda), and decomposition of this 1 pt. with hypobromite; 100 c.c. of urine may be employed. *Urates* occur as whitish or reddish deposit; under microscope Na and Ca urates are generally amorphous, Na urate sometimes re-embles hedgehogs; Am urate, opaque globules or slender dumb-bell's which are single, crossed, or rosetted. *Phosphates* are always deposited as alkalinity develops; the Mg, Ca, P<sub>2</sub>O<sub>5</sub> may be detected by usual methods. Under microscope Ca phosph. is amorph., the AmMg salt in rhombic prisms (sol. in acetic acid). *Ua oxalate* occurs in octahedrons or dumb bells; it is colourless, insol. in alkalis and acetic acid. *Sulphuric acid* is estimated directly as SrSO<sub>4</sub> (sulphates); after boiling another portion with HNO<sub>3</sub> and KClO<sub>3</sub> (diff. = oxidisable S); by fusing resi-

due of urine with  $\text{KNO}_3$  the difficultly oxidisable sulphur is obtained by difference. *Chlorides* estimated as  $\text{AgCl}$ . *Albumin* is indicated by a deposit, insol. on adding a drop of acid (picric being the best) on boiling the urine. *Sugar* may be estimated by Fehling's soln., by the polarimeter, by loss of sp. gr. on fermentation, Ac. (Fehling's soln. - Cu sulph. crys.,  $34\cdot64$  G; Rochelle salt,  $173$  G;  $\text{NaHO}$  soln. (sp. gr.  $1\cdot14$ ),  $4\cdot80$  c.c.; make up to  $1000$  c.c.;  $10$  c.c. =  $\cdot05$  G glucose,  $\text{C}_6\text{H}_{12}\text{O}_6$ ). For detection boil urine with this soln.; for estimation deliver dil. urine ( $1$  in  $10$  p. aq.) from burette into  $10$  c.c. of Fehling's soln., dild. and boiling in a dish, adding urine little at a time till colour goes entirely. The (original) vol. of urine necessary to decolorise conts.  $\cdot05$  G glucose. Use average of urine passed in  $24$  hours. Uric acid also gives a ppt. with the soln., but not on standing in the cold as sugar does. Johnson *detects* sugar by mixing Liq. Potass. with urine, boiling, and adding picric acid; sugar causes a deep red colour. *Blood* may be detected by adding urine to an emulsion of Tr. Guaiac. and oil of turp.; an intense blue colour results in presence of blood. It may also be detected by its absorption spectrum.

#### *Biliary acids*, v. p. 423.

*Biliary* colouring matter is indicated by colour (v. supra); a yellow scum forms on surface after agitation, and the urine has a bitter taste. *Leucin* may be extracted from the residue of urine (after treatment with Pb acetate and removal of Pb) with boilg. alcohol. It separates (on evapg. off alcohol. to a syrup) in crys., appearing under microscope as round balls with peculiar radiating or concentric markings. *Tyrosin* is obtained in similar manner, but is extracted by boilg. aq. from resid. insol. in alcohol. It forms fine colorless needles, and Hg nitrate boiled with it in soln. gives rosy red colour and ppt. *Cystine*, see Calculi, p. 422. *Accidental pigments* from food, &c. may be present.

### The Examination of Vomit.

The vomit is filtered through canvas or muslin, and the solid matter remaining on the filter examined by inspection and otherwise. The liq. passing the filter is allowed to settle.

*The Filtrate*.—The reaction is determined by litmus paper. The pres. of free hydrochloric acid is detected by methyl-

orange, which becomes red in pres. of mineral acids. It must be remembered that lactic acid displaces not only volatile acids, but even hydrochloric and other mineral acids from their salts. The *volatile acids* are separated by distillation. From the non-volatile *lactic acid* may be separated by saturating with  $\text{ZnO}$ , and evapg. to dryness; the residue is digested with alcohol, when zinc lactate remains insoluble. The acetic and butyric salts of zinc dissolve in alcohol, and these acids may be separated by evapg. the distillate to a low bulk, acidltg. with  $\text{HCl}$ , and saturatg. the liqd. with  $\text{CaCl}_2$ . On shaking the soln. with ether *butyric acid* passes into the ether, while *acetic acid* remains in the aqueous layer. To test for *pepsin* add an equal vol. of dil.  $\text{HCl}$  (10 m. of Acid. Hy. Dil. B.P. to 1 3 of aq.), and a flake of hard-boiled white of egg; *pepsin*, if present, causes the dissolution of the albumen. *Trypsin* may be detected by proceeding in a similar manner, but omitting the acid, and rendering the liqd. slightly alkaline with sod. bicarb. *Peptone* may be detected by dialysing and treating the outer liqd. with  $\text{HgCl}_2$ , which ppt. *peptones*, or with  $\text{KIO}$  and a drop of dil. soln. of  $\text{CuSO}_4$ , which gives a ppt., soluble on shaking, to a soln., which is red, and becomes purple on adding more copper soln. Blood, bile, &c., should also be looked for.

## THE DETECTION OF VEGETABLE ALKALOIDS, GLUCOSIDES, &amp;c.

The following is an outline of Dragendorff's process.

Extract the comminuted substance with water acidul. with sulphuric or acetic acid. Add alcohol to syrup obtained by evapn. and filter. Distil off alcohol and again filter. Treat aqueous acid liquid with the following immiscible solvents in succession, separating each before applying the next:—PETROLEUM ETHER, BENZENE, CHLOROFORM. Separate residual dissolved chloroform by petr. ether and alkalise with ammonia. Shake in succession as before with PETROLEUM ETHER, BENZENE, CHLOROFORM, AMYL ALCOHOL. The residual aqueous liquid may contain *curarine*. The solvents will have separated the substance as indicated in the following table:—

In ammoniacal liquid.	Amyl. alcohol.	<i>Convallamarin, Morphine, Narceine, Salicin, Saponin, Senegin, Solanine.</i>
	Chloroform.	<i>Celandine alkd., Cinchonine, Morphine, Narceine, Papaverine.</i>
	Benzene.	<i>Aconitin, Aconitine, Atropine, Brucine, Cinchonine, Codeine, Delphinine, Emetine, Ethyl-strychnine, Hyoscyamine, Methyl-strychnine, Nupelline, Narcotine, Nepeline, Physostigmine, Quinine, Sabadilline, Sabatrine, Strychnine, Thebaine, Veratrine.</i>
	Petr. ether.	<i>Aniline, Brucine, Capsicum, Conine, Emetin, Lobeline, Methyl-conine, Nicotine, Pimento, Quinine, Sabadilline, Sarracenin, Sparteine, Strychnine, Trimethylamine, Veratrine.</i> HCl added in evapn. if odorous liquid (vol. alkald.) left on evap. small portion.
From acid liquid.	Chloroform.	AMORPH.— <i>Convallamarin, Digitalin, Jervine, Saponin, Senegin, Smilacin, Syringin.</i> CRYSTNE.— <i>Cinchonine, Helleborin, Narceine, Papaverine, Picrotoxin, Theobromine.</i>
	Benzene.	AMORPH. COLOURLESS OR PALE YELLOW.— <i>Colocynthin, Elaterin, Pimento, Populin.</i> AMORPH. YELLOW.— <i>Chrysammic acid, Colchicine, Quassia, Wormwood, &amp;c.</i> CRYSTNE. COLOURLESS.— <i>Berberine, Cantharidin, Cascarillin, Cubebin, Digitalin, Santonin, Theine.</i> CRYSTNE. YELLOW.— <i>Alotin (Picric acid, Piperin).</i>
	Petr. ether.	VOLATILE.— <i>Phenol</i> , and essent. oils. AMORPH.— <i>Aconite, Capsicin, Hellebore.</i> CRYSTNE. AND VOLAT.— <i>Picric acid, Piperin.</i> CRYST. COLOURLESS, FUSIBLE, ODOREOUS. — <i>Camphor, &amp;c.</i>



TABLE OF ASH, OR RESIDUE OF INCINERATION, OF  
VARIOUS DRUGS AND PREPARATIONS. (G.M.J.)  
(Warnecke's numbers are all from air-dried samples.)

Name of Substance.		Ash per cent.	Authority.
Acid Arsenios.	.. ..	nil	P. B.
" Benzoic.	.. ..	only a slight residu.	"
" Boric. (cryst.)	.. ..	56.5	"
" Citric. ..	.. ..	nil	"
" Gallic. ..	.. ..	"	"
" Hydrobromic. Dil.	.. ..	"	"
" Hydrochloric.	.. ..	"	"
" Hydrocyan. Dil.	.. ..	"	"
" Lactic. ..	.. ..	trace only	"
" Nitric. ..	.. ..	little or none	"
" Phosph. Conc.	.. ..	48.1 of $P_2O_5$ with lead oxide	"
" " Dil.	.. ..	10.0 do. do.	"
" Sulphuric.	.. ..	little or none	"
" Sulphuros.	.. ..	nil	"
" Tannic.	.. ..	"	"
" Tartaric.	.. ..	trace or none	"
" Aconitina	.. ..	nil	"
" Ether ..	.. ..	"	"
Alcohol Ethylicum	.. ..	"	"
Aloes v. Succus	.. ..	"	"
Alumen Potassii	.. ..	between 54 and 55	"
Ammonii Benzoas.	.. ..	nil	"
" Carbonas	.. ..	"	"
" Chloridum	.. ..	"	"
" Nitrus	.. ..	"	"
Anatto, Pure ..	.. ..	2, almost entirely NaCl	W. Lawson
" Commercial	.. ..	13 to 52	"
Antimonium Sulphuratum ..	.. ..	about 66.66 ( $Sb_2O_4$ )	See P. B.

TABLE OF ASH, &c.—*continued*.

Name of Substance.	Ash per cent.	Authority.
Aqua Destillata .. .. .	scarcely visible residue	P. B.
Argenti Oxidum .. .. .	93·103 (of Ag.)	"
Arillus Myrtistica ( <i>Macis</i> ) .. ..	1·39	Warnecke
" " after removal of 30·13 per cent. fat.	2·74	"
Arsenii Iodidum .. .. .	almost entirely volatile	P. B.
Atropina .. .. .	nil	"
Atropinae Sulphas .. .. .	"	"
Bobetinae .. .. .	"	"
Bismuthi Oxidum .. .. .	scarcely diminished	"
Caffeina Citras .. .. .	in weight	"
Calcii Hypophosphis .. .. .	a mere trace	"
Camphora .. .. .	about 80	"
Carbo Animalis Purificatus .. ..	nil	"
" Ligni .. .. .	not more than about 2	"
Catechu Pallidum .. .. .	2·6	Pharmacographia.
Caulis Chiratae (dried at 100° C)	3·7	"
? " Sacchari Officinari .. ..	0·29	"
Cerii Oxalas .. .. .	48	P. B.
Chloral Hydras .. .. .	nil	"
Chloroformum .. .. .	"	"
Chondrus crispus (Irish moss) ..	more than 15	Pharmacographia.
Chrysarobinum .. .. .	nil	P. B.
Cinchonidinae Sulphas .. .. .	"	"
Cinchoninae Sulphas .. .. .	"	"
Cocaine Hydrochloras .. .. .	"	"
Coccus .. .. .	not much more than 1	"
Codelna .. .. .	nil	"

TABLE OF ASH, &c.—*continued.*

Name of Substance.		Ash per cent.	Authority.
Cortex	Aurantii Fruct. (white inner tissue removed).	5.28	Warnecke.
"	Belæ Indicæ Fruct. .. ..	2.8	"
"	Canellæ Albæ .. ..	6	Pharmacographia.
"	Cinnamomi .. ..	5	"
"	Citri Fruct. .. ..	3.55	Warnecke.
"	Granati Fruct. .. ..	5.9	Pharmacographia.
"	Ipecac. Rad. .. ..	2.25	Warnecke.
Crocus v. Stigmata Croci	.. ..	?	
Elaterinum .. ..	.. ..	nil	P. B.
Ferri et Ammonii Citras	.. ..	about 30	"
" Peroxidum Hydratum	.. ..	about 90	"
Ferrum Tartaratum	.. ..	after washing about 30	
		(Fe <sub>2</sub> O <sub>3</sub> ) 6.07	W. L. Stearns.
Flores Pyrethri species (Insect powder).		16.6	Pharmacographia.
Folia Aconiti .. ..	.. ..		
"	Barosmæ betulinae .. ..	4.49	
"	" crenulatae .. ..	4.54 to 4.7	
"	" serratifoliae .. ..	5.27	
"	Belladonnae (dried) .. ..	14.5	"
"	Cannabis Sativæ .. ..	nearly 20	"
"	Chiratae (dried at 100° C.) ..	7.5	"
"	Conii (dried) .. ..	12.8	"
"	Sennæ .. ..	9 to 12	"
"	Stramonii (selected leaves, dried at 100° C.) ..	17.4	"
"	Tabaci .. ..	16 to 27	
Fructus Ajoowan .. ..	.. ..	10.45	Warnecke.
"	Anacardii occidentalis .. ..	1.64	"
"	" orientalis .. ..	2.14	"
"	Anisi .. ..	6.7	"
"	" religiosi .. ..	2.02	"

TABLE OF ASH, &c.—*continued*.

Name of Substance.		Ash per cent.	Authority.
Fructus Anisi Stellati .. ..	..	2.16	Warnecke.
" Aurantii Immaturi .. ..	..	5.85	"
" " Flavido .. ..	..	3.90	"
" Cannabîs .. ..	..	4.83	"
" Capsici .. ..	..	4.66	"
" " Pulv. (Pip. Cayenne).	..	4.54	"
" Cardanomi .. ..	..	6.12	"
" Carul. .. ..	..	5.27	"
" Cocculi .. ..	..	5.2	"
" Colæ .. ..	..	2.53	"
" Conil. .. ..	..	6.69	"
" Coriandri .. ..	..	5.21	"
" Cubebæ .. ..	..	5.45	"
" " Pulv. .. ..	..	8.46	W. L. Stearns.
" Cumini .. ..	..	8.09	Warnecke.
" Dauci sylvestris .. ..	..	5.96	"
" Fœniculi .. ..	..	7.25	"
" Juniperi .. ..	..	3 to 4	Pharmacographia.
" Mori .. ..	..	0.57	"
" Papaveris (dried at 100° C., sine semina).	..	14.23	"
" Petroselinî .. ..	..	7.01	Warnecke.
" Pimentæ .. ..	..	4.0	"
" Piperis Albi .. ..	..	1.1	Pharmacographia.
" " Longi .. ..	..	8.33	"
" " Nigri .. ..	..	4.1 to 5.7	"
" Rhamni cathartici immaturi.	..	3.67	Warnecke.
" " " maturi .. ..	..	2.80	"
" " " " " " " " " " " "	..	4.6	Pharmacographia.
Fucus amylaceus (Ceylon moss, dried at 100° C.)	..	7.5 to 9.15	"
Glandula Kamati .. ..	..	4 or 5, not above 10	P. B.

TABLE OF ASH, &c.—*continued*.

Name of Substance.		Ash percent.	Authority.
Glandulæ	Kamala (special kind from Aden)	12	Pharmacographia. P. B.
"	Lupulina .. ..	not more than about 15	
"	" .. ..	10·81	Warnecke.
"	" good specimen	7·3	Pharmacographia.
"	" Impure ..	15·33 to 44·76	Warnecke.
Gossypium	.. ..	less than 1	P. B.
Grana Paradisi v. Sem. Paradisi ..	.. ..	?	?
Guarana, Pasta .. ..	.. ..	1·36	Warnecke.
Gummi Acaciæ .. ..	.. ..	2·7 to 4·0	Pharmacographia.
" Tragacanthæ .. ..	.. ..	3	P. B.
Gummi-resina Asafoetidæ .. ..	.. ..	not above 10	Pharmacographia.
" Euphorbium .. ..	.. ..	10	" P. B.
Herba Hydrocotyles .. ..	.. ..	13	"
Hydrag. Iod. Rub. .. ..	.. ..	nil	"
" Ox. Flav. .. ..	.. ..	"	"
" Rub. .. ..	.. ..	"	"
" Perchlor. .. ..	.. ..	"	"
" Persulph. .. ..	.. ..	"	"
Hydrargyrum .. ..	.. ..	"	"
" Ammoniatum .. ..	.. ..	"	"
Iodoform .. ..	.. ..	"	"
Iodum .. ..	.. ..	"	"
Kino .. ..	.. ..	1·3	Pharmacographia.
Lichen Islandicus .. ..	.. ..	1 to 2	"
Lignum Guaiaci (Heartwood) ..	.. ..	0·60	"
" " (Sapwood) .. ..	.. ..	0·91	"
" Hamatoxyli .. ..	.. ..	3·3	"
" Ipecac. Rad. .. ..	.. ..	1·37	Warnecke.
" Pterocarpi Rubri .. ..	.. ..	0·8	Pharmacographia.

TABLE OF ASH, &c.—*continued*.

Name of Substance.	Ash per cent.	Authority.
Lignum Quassia (dried at 100° C.)	7·8	Pharmaco-graphia, P. B.
Liquor Lithiæ Effervescens.. ..	about 0·1143	"
" Mag. Carb. .. ..	about 0·905	"
" Potassæ .. ..	5·832	"
" Sodæ .. ..	4·105	"
" Sodii Ethylatis .. ..	9·017	"
Lithii Carbonas .. ..	(NaHO?) 143·6	"
" Citras .. ..	(of Li <sub>2</sub> SO <sub>4</sub> ) 39	"
Lupulin. v. Glanduke Lupulini ..	4	Pharmaco-graphia.
Lycopodium clavatum .. ..	?	P. B.
Macis v. Arillus Myristicæ .. ..	44	"
Mag. Carb. Lewis .. ..	44	"
" Pond. .. ..	16·26 (See B.P.)	"
" Sulph. .. ..	3·6	"
Manna (Finest) .. ..	not more than 0·2	Pharmaco-graphia, P. B.
Mel .. ..	nil	"
Menthol .. ..	"	"
Morphinæ Acetas .. ..	"	"
" Hydrochloras .. ..	4 to 8	Pharmaco-graphia, P. B.
Optum, good (dried at 100° C.) ..	nil	"
Parafinum Durum .. ..	"	"
" Molle .. ..	69	"
Phloerarpinæ Nitras.. ..	about 84	"
Potassii Bicarbonas .. ..	3·72	"
" Carbonas .. ..	11	"
Pulpa Bela Indica Fruct. .. ..	5·0	Warnecke.
" Colocynthis (dried at 100° C.)		Pharmaco-graphia.
" Nucis Vom. Fruct. (dried)		Dunstan and Short,

TABLE OF ASH, &c.—*continued.*

Name of Substance.		Ash per cent.	Authority.
Pyroxylin	.. .. .	nil	P. B.
Quinina Sulphas	.. .. .	"	"
Radix Althææ Decort. (dried at 100° C.)	.. .. .	4.89	Pharmaco-graphia.
"	Armoracæ (dried at 100° C.)	11.15	"
"	Calumbæ .. .. .	6	"
"	Hydrastis Canadensis ..	7.77	W. L. Stearns.
"	Ipecac. .. .. .	1.98	Warnecke.
"	Rhei Ang. .. .. .	10.9	Pharmaco-graphia.
"	" China (dried at 100° C.)	12 to 43	"
"	Tarax. (washed and dried at 100° C.)	5.24	"
"	Zingib. Pulv. .. .. .	4.8	W. L. Stearns.
Resina Guaiaci	.. .. .	0.8	Pharmaco-graphia.
Rhizoma Filicis	.. .. .	2 to 3	"
"	Tritici Repentis .. .. .	4.5	"
Salep. (Tuberculæ Orchidis vel Eulophiæ, dried at 110° C.)	.. .. .	2	"
Salicnum..	.. .. .	nil	P. B.
Santonium .. .. .	.. .. .	"	"
Semina Abri Precatorii	.. .. .	2.79	Warnecke.
"	Amygd. Dulcis. .. .. .	3 to nearly 5	Pharmaco-graphia.
"	Areceæ..	2.26	"
"	Belladonnæ .. .. .	2.22	Warnecke.
"	Cinæ (Santonica) .. .. .	6.5	Pharmaco-graphia.
"	Colchici .. .. .	2.68	Warnecke.
"	Colocyuthidis .. .. .	2.7	Pharmaco-graphia.
"	Crotonis Kernel (dried at 100° C.)	3.0	"
"	" Testa (or shell)	2.6	"

TABLE OF ASH, &c.—*continued*.

Name of Sub-stance.	Ash per cent.	Authority.
Semina Cucurbitæ .. ..	2.88	Warnecke.
" Cydoniæ .. ..	3.55	"
" Fœni Græci .. ..	7.0	Pharmacographia.
" .. ..		Warnecke.
Gossypii arborei .. ..	4.49	"
" .. farina.. ..	6.85	Pharmacographia.
" Hordei Decorticati .. ..	2.4 to 2.6	Warnecke.
" Hyoscyami .. ..	4.51	"
" Ignatii .. ..	2.34	Pharmacographia.
" Linî .. ..	3.0	Warnecke.
" .. Farina c. Oleo .. ..	4 to 7	"
" .. " sine Oleo .. ..	7.9	Pharmacographia.
" Myristicæ .. ..	2.0	Warnecke.
" .. (after removal	3.77	"
" .. of 41.25 per cent. of fat).		
" Nigellæ .. ..	3.67	"
" (v. Grana) Paradisi (dried	2.15	Pharmacographia.
" .. at 100° C.).		
" Physostigmatis .. ..	3.0	"
" Rapæ .. ..	4.36	Warnecke.
" Ricini kernel (dried at	3.5	Pharmacographia.
" .. 100° C.)		
" Ricini testa (or shell) .. ..	10.7	"
" Sabadille .. ..	3.45	Warnecke.
" Sinapis albæ .. ..	4.63	"
" .. nigra .. ..	4.0	Pharmacographia.
" Staphisagria .. ..	8.7	"
" .. " .. ..	9.88	Warnecke.
" Stramonii .. ..	2.9	Pharmacographia.
" .. " .. ..		
" Strychni .. ..	1.14	"
" Tonco .. ..	3.57	Warnecke.
Sodii Bicarbonas .. ..	63.1	Pharmacographia.
" Carbonas .. ..	63	Warnecke.
" .. " .. ..		P. B.
" .. " .. ..		"



TABLE OF ASH, &c.—*continued*.

Name of Substance.	Ash per cent.	Authority.
Sodii Phosphas .. .. .	63	P. B.
" Sulphas .. .. .	55·9	"
Stigmata Croci (Saffron) .. .. .	5 to 6	Pharmaco-graphia.
" .. .. .	about 6	Pharm. Brit.
" .. .. . (adulterated) .. .. .	12 to 28	Pharmaco-graphia.
Strobili Humuli (dried at 100° C.)	6 to 7	"
Strychnina .. .. .	nil	P. B.
Succus Aloes Capensis (dried at 100° C.)	1	Pharmaco-graphia.
" Ecballi recens .. .. .	1·0 to 1·6	"
" Limonis .. .. .	2·29	"
" Glycyrrh. Solazzi (dried at 100° C.)	6·3	"
" .. .. . Baracco .. .. .	6·06	L. J. Schroeder
Sulphur Precipitatum .. .. .	nil	P. B.
" Sublimatum .. .. .	"	"
Theriaca (of Colonial Sugar) .. .. .	5 to 7	Pharmaco-graphia.
Thymol .. .. .	nil	P. B.
Veratrina.. .. .	"	"

# THE VOLUMETRIC TEST SOLUTIONS OF THE B.P.

<p><math>K_2Cr_2O_7</math>.</p> <p>FACTORS.</p> <p>1 c. c. = .0168 G. Fe</p> <p>„ .0338 „ <math>FeCO_3</math></p> <p>„ .0358 „ <math>F_3P_2O_8</math></p> <p>„ .0834 „ <math>FeSO_4, 7H_2O</math></p> <p>„ .0456 „ <math>FeSO_4</math></p> <p>„ .0510 „ <math>FeSO_4, Aq</math></p>	<p>POTASSIUM BICHROMATE <math>\frac{1}{3}</math> N.</p> <p>USED FOR</p> <p>Ferri Arsenias.</p> <p>Ferri Carb. Sacch. ..</p> <p>Ferri Phosphas. .. ..</p> <p>Ferri Sulphas. .. ..</p> <p>Ferri Sulph. Exsiccata</p> <p>Ferri Sulph. Granul. ..</p>	<p>14.57 G. PER LITRE.</p> <p>OFFICIAL STRENGTH %.</p> <p>37.8 Fe</p> <p>16.10 Fe; 33.34 <math>FeCO_3</math></p> <p>16.62 Fe; 53.99 <math>F_3P_2O_8, 8Aq</math></p> <p>19.95 Fe; 99.05 <math>FeSO_4, 7Aq</math></p> <p>32.09 Fe; 97.42 <math>FeSO_4, Aq</math></p> <p>20.14 Fe; 100 <math>FeSO_4, Aq</math></p>
<p><math>Na_2S_2O_3, 5Aq.</math></p> <p>1 c. c. = .00355 G. Cl</p> <p>„ .0127 „ I</p> <p>„ .00495 „ <math>As_2O_3</math></p>	<p>SODIUM HYPOSULPHITE <math>\frac{1}{10}</math> N (THIOSULPHATE).</p> <p>Calx Chlorinata .. ..</p> <p>Iodum .. .. .</p> <p>Liq. Calc. Chlorinatae ..</p> <p>Liquor Chlorig. .. ..</p>	<p>24.8 G. PER LITRE.</p> <p>33.15 Available Cl.</p> <p>100 I</p> <p>1.99 Available Cl.</p> <p>.61 Available Cl.</p>

THE VOLUMETRIC TEST SOLUTIONS OF THE B.P.—*continued.*

I. FACTORS.	IODINE $\frac{1}{10}$ N. USED FOR	12·7 G. PER LITRE. OFFICIAL STRENGTH %.
1 c. c. = ·00495 G. $\text{As}_2\text{O}_3$ " ·0032 " $\text{SO}_2$  " ·00248 " $\text{Na}_2\text{S}_2\text{O}_3, 5\text{Aq}$	Acid Arseniosum .. Acid Sulphurosum .. Liquor Arsenicalis .. Liq. Arsen. Hydrochlor. Sodii Hyposulph... ..	99·80 $\text{As}_2\text{O}_3$ 5 $\text{SO}_2$ ; 6·4 $\text{H}_2\text{SO}_3$ ·97 $\text{As}_2\text{O}_3$ ·97 $\text{As}_2\text{O}_3$ 100 $\text{Na}_2\text{S}_2\text{O}_3, 5\text{Aq}$
$\text{AgNO}_3$ .	SILVER NITRATE $\frac{1}{10}$ N.	17·0 GRMS. PER LITRE.
1 c. c. = ·0027 G. $\text{HCN}$ " ·0098 " $\text{NH}_4\text{Br}$ " ·0119 " $\text{KBr}$ " ·0065 " $\text{KCN}$ " ·0166 " $\text{KI}$ " ·0103 " $\text{NaBr}$ " ·0150 " $\text{NaI}$	Acid Hydrocyan. dil. .. Ammonii Bromidum .. Potassii Bromidum .. Potassii Cyanidum .. Potassii Iodidum .. .. Sodii Bromidum .. .. Sodii Iodidum .. ..	2·0 $\text{HCN}$ 100 $\text{NH}_4\text{Br}^*$ 100 $\text{KBr}^*$ 94·9 $\text{KCN}$ 99·9 $\text{KI}$ 98·88 $\text{NaBr}$ 99·00 $\text{NaI}$

THE VOLUMETRIC TEST SOLUTIONS OF THE B.P.—*continued.*

$C_2H_2O_4, 2Aq.$		OXALIC ACID N.	63 G. PER LITRE.
FACTORS.		USED FOR	OFFICIAL STRENGTH %.
1 c. c. =	•523 G. $N_3H_{11}C_2O_5$	Ammonii Carbonas. ..	100 $N_3H_{11}C_2O_5$
"	•0191 " $Na_2B_4O_7, 10Aq$	Borax .. ..	100 $Na_2B_4O_7, 10Aq$
"	•0170 " $NH_3$	Liq. Ammon. .. ..	10 $NH_3$
"	•0280 " $CaO$	Liq. Ammon. fort. ..	32.5 $NH_3$
"	•0274 " $Pb_2O(C_2H_3O_2)_2$	Liq. Calcis .. ..	•115 $CaO$
"		Liq. Calcis Sacch. ...	1.52 $CaO$
"	•0560 " $KHO$	Liq. Plumbi Subacet.	24 $Pb_2O(C_2H_3O_2)_2$
"	•1000 " $KHCO_3$	Liq. Potassæ .. ..	5.83 $KHO$
"	•0400 " $NaHO$	Liq. Potassa efferves. ..	30 gr. per O
"	•0840 " $NaHCO_3$	Liq. Sodæ .. ..	4.1 $NaHO$
"	•01895 " $Pb(C_2H_3O_2)_2, 3Aq$	Liq. Sodæ efferves. ..	30 gr. per O
"	•0560 " $KHO$	Plumbi Acetas. .. ..	99.6 $Pb(C_2H_3O_2)_2, 3Aq$
"	•1000 " $KHCO_3$	Potassa Caustica .. ..	90 $KHO$
"	•0640 " $K_2CO_3$	Potassii Bicarb. .. ..	100 $KHCO_3$
"	•0825 " $K_2CO_3, 1\frac{1}{2}Aq$	Potassii Carb. .. ..	100 $K_2CO_3$
"	•1030 " $K_3C_6H_5O_7$	Potassii Carb. hyd. ..	97.4 $K_2CO_3, 1\frac{1}{2}Aq$
"	•1220 " $K_2C_4H_4O_6, Aq$	Potassii Citras. .. ..	100 $K_3C_6H_5O_7$
"	•1580 " $KHC_4H_4O_6$	Potassii Tartras. .. ..	100 $K_2C_4H_4O_6, Aq$
"	•010 " $NaHO$	Potassii Tartras. Acid	92.15 $KHC_4H_4O_6$
"	•1410 " $NaKC_4H_4O_6, 4Aq$	Soda Caustica .. ..	90 $NaHO$
"	•0840 " $NaHCO_3$	Soda Tartarata .. ..	99 $NaKC_4H_4O_6, 4Aq$
"	•1430 " $Na_2CO_3, 10Aq$	Sodii Bicarb. .. ..	100 $NaHCO_3$
"	•0230 " $Na$	Sodii Carb. .. ..	96 $Na_2CO_3, 10Aq$
		Sodium .. ..	97.5 $Na$

# THE VOLUMETRIC TEST SOLUTIONS OF THE B.P.—*continued.*

NaHO. FACTORS.	CAUSTIC SODA. USED FOR	40 G. PER LITRE. OFFICIAL STRENGTH %.
1 c. c. = .0600 G. $\text{HC}_2\text{H}_3\text{O}_2$	Acetum .. .. .	5.41 $\text{HC}_2\text{H}_3\text{O}_2$
	Acidum Acetic .. ..	32.99 $\text{HC}_2\text{H}_3\text{O}_2$
	Acid Acet. dil. .. ..	4.27 „
	Acid Acet. Glac. .. ..	99 „
„ .0700 „ $\text{H}_3\text{C}_6\text{H}_5\text{O}_7, \text{Aq}$	Acid Citric .. .. .	100 $\text{H}_3\text{C}_6\text{H}_5\text{O}_7, \text{Aq}$
„ .0810 „ $\text{HBr}$	Acid Hydrobrm. dil. ..	10 $\text{HBr}$
„ .0365 „ $\text{HCl}$	Acid Hydrochlor. .. .	31.8 $\text{HCl}$
	Acid Hydroch. dil. ..	10.58 $\text{HCl}$
„ .1170 „ $\text{HC}_3\text{H}_5\text{O}_3, 1\frac{1}{2} \text{Aq}$	Acid Lacticum .. ..	97.5 $\text{HC}_3\text{H}_5\text{O}_3, 1\frac{1}{2} \text{Aq}$
	Acid Lact. dil. .. ..	14.6 $\text{HC}_3\text{H}_5\text{O}_3, 1\frac{1}{2} \text{Aq}$
„ .0630 „ $\text{HNO}_3$	Acid Nitricum .. ..	70 $\text{HNO}_3$
	Acid Nit. dil. .. ..	17.44 $\text{HNO}_3$
	Acid Nit. Hydroch. dil.	10 $\text{NaHO equiv.}$
„ .0490 „ $\text{H}_2\text{SO}_4$	Acid Sulphuricum .. .	98 $\text{H}_2\text{SO}_4$
	Acid Sulphuric Arom. ..	12.56 „
	Acid Sulphuric dil. ..	13.65 „
„ .0750 „ $\text{H}_2\text{C}_4\text{H}_4\text{O}_6$	Acid Tartaricum .. ..	99 $\text{H}_2\text{C}_4\text{H}_4\text{O}_6$

THE FOLLOWING INDICATORS ARE MENTIONED  
IN THE B.P.

Starch for titrations with iodine.

Potass. ferricy. for titrations with  $\text{Fe}''$  salts.

Litmus and phenol-phthalein for acidimetry and alkalimetry.

Potassium monochromate for titrations with silver.

NOTE.—Methyl-orange is an excellent substitute for litmus with most acids, but not with oxalic acid; when using this indicator there is no necessity to boil off  $\text{CO}_2$ . Phenol-phthalein is very sensitive to  $\text{CO}_2$ .

Some other materials of the B.P. may be tested by these volumetric solutions.

TABLE SHOWING INDICATIONS GIVEN BY LITMUS, METHYL-ORANGE, PHENACETOLIN, PHENOL-PHTHALEIN AND ROSOLIC ACID WITH VARIOUS SALTS OF ALKALIES (M = K or Na, not Am) WITH AMMONIA AND WITH SOME ACIDS. (FROM R. T. THOMPSON'S RESULTS.)

Indicator.	MHO.	$M_2CO_3$ .	$MHCO_3$ .	$M_2CO_3$ MHO together.	$M_2CO_3$ $MHCO_3$ together.	Free Ammonia.
Litm.	Sharp	$M_2O$ Boil.	$M_2O$ Boil.	Met.-org. in cold gives total $M_2O$ . Add excess of $BaCl_2$ to dilute cold solution of separate quantity and use Ph.-ph. without filtration. MHO only is indicated.	Tot. Alk. by Met.-org. on separate quantity. Add known MHO in excess to separate quantity, and determine MHO by $BaCl_2$ and Ph.-ph. in cold. The MHO which disappears converts $MHCO_3$ into $M_2CO_3$ .	} Good results.
Met.-org.	Sharp Cold	$M_2O$ Cold.	$M_2O$ Cold			
Ph.-acet.						
Ph.-phth.	Sharp	$M_2O$ Boil.	Neutral Cold, $M_2O$ Boil.			Useless.
Ros. acid	Sharp	$M_2O$ Boil.	$M_2O$ Boil.			Fair.

TABLE SHOWING INDICATIONS, &c.—*continued.*

Indicator.	$M_2S_2O_3$ .	$M_2SO_3$ . $MHSO_3$ .	$M_2S$ .	$M_3PO_4$ .	$M_2HPO_4$	M Silicate.	M Alu- minate.	M Borates.	$M_3AsO_4$	$NaAsO_2$ .
Litm.	Neutral.	$\frac{1}{2} M_2O$ of $M_2SO_3$ ind. $MHSO_3$ neutral. Me.-org. best.	Good boiling	$\frac{3}{8} M_2O$ but Me.-org. sharpest, others indis- tinct. Ph.-ac. two changes.	$\frac{1}{2} M_2O$ Me.-org. sharpest.	Sharp.	High indis- tinct.	Indis- tinct.	Slow, in- distinct $\frac{2}{3} M_2O$	Good Total $M_2O$ indi- cated.
Met.- org.			Good cold.			Sharp.	Sharp.	Good.	$\frac{2}{3} M_2O$	
Ph.-ac.			Good boiling			Indis- tinct.		Indis- tinct.	Same as litm.	
Ph.- phth.		$M_2SO_3$ neutral cold.	$\frac{1}{2} M_2O$ cold	$\frac{1}{8} M_2O$ cold	Almost neutral.	Low.	Good.	Useless.	$\frac{1}{3} M_2O$	Low
Ro.- acid.			$M_2O$ boiling	$\frac{3}{8} M_2O$ indis- tinct.	$\frac{1}{2} M_2O$ indis- tinct.	Sharp boiling.	High.	Indis- tinct.	Same as litm.	Same as litm.



TABLE SHOWING INDICATIONS, &amp;c.—continued.

Indicator.	HCl, HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> .	$\left\{ \begin{array}{l} \text{COHO} \\ \text{COHO.} \end{array} \right.$	$\left\{ \begin{array}{l} \text{CH}_3 \\ \text{COHO.} \end{array} \right.$	Tartaric Acid.	Citric Acid.	Remarks.
Litm.	Good boiling.	Sharp.	Low.	Fair.	Low.	Acids change blue to red; alkalies turn red to blue. Aq. soln.
Me.-Org.	Good cold.	Useless.	Useless.	Useless	Useless	Yellow when alkaline; pink with acid; MCl, M <sub>2</sub> SO <sub>4</sub> , MNO <sub>3</sub> decrease sharpness; useless with nitrites. Alcoh. soln.
Ph.-ac.	Good if carb. present.	Low.	Low.	Low.		Faint yellow with MHO; dark pink with M <sub>2</sub> CO <sub>3</sub> and NH <sub>3</sub> , more intense with MHCO <sub>3</sub> ; golden yellow with acids. Alcoh. soln.
Ph.-phth.	Good boiling.		Sharp.	Good.	Sharp.	Colorless when acid or neu- tral; fine red when alka- line. Alcoh. soln.
Ros.-ac.	Good boiling.	Sharp.	Useless.	Fair.	Useless.	Pale yellow to pink by alkali; am. salts decrease sharpness. Alcoh. soln.

PROPERTIES AND REACTIONS  
 LR = laevo-rotatory ; DR = dextro-rot. ; S = soluble ;

Name and Formula.		Source.	Crystn.	Rotat. in Alcoh.
Isomers.	Quinine $C_{20}H_{24}N_2O_2$	Var. C. barks	Hy. crs.	$S_D - 165.8$
	Cinchonidine $C_{20}H_{24}N_2O_2$	C. rubra, &c.	Anhy. crs.	$S_j - 144.61$
	Cinchonine $C_{20}H_{24}N_2O_2$	Most. C. barks	" "	$S_D + 228$
	Quinidine $C_{20}H_{24}N_2O_2$	Var. C. barks	Hy. crs.	$S_j + 250.75$
	Homocinchonine $C_{19}H_{22}N_2O$	C. rosulenta	Crs.	LR
Isom.	Homocinchonidine $C_{19}H_{22}N_2O$	C. ovata	Crs.	LR
	Dihomocinchonidine $C_{38}H_{44}N_4O_2$	C. rosulenta	Amorph.	DR
	Quinamine $C_{19}H_{24}N_2O_2$	C. Calisaya, rosulenta, succirubra.	Anhy. crs.	DR

# OF CINCHONA ALKALOIDS.

s = sparingly S; F = fluorescent salts; Hy. = hydrated.

Thall. Test.	Solubility.			Other Solvents.	Remarks.
	Alcoh.	Ether.	Chlorm.		
Form.	S	S	S	Vol. & fix. oils. Benzene. Petr. spt., CS <sub>2</sub> .	Salts crys. F.
Not form.	S	s	S	..	Tartrate insol. Not F. Melts 175°C.
"	S	I	I	Amyl. alch.	Partially sublimes. Not F. Melts 165°C.
Form. ?	S	s	S	..	Melts 160°C. Salts crys. F. Tartrate sol. Ppd. by KI.
..					
..	S				
..	..	..	..	..	Salts amorph. Not F.
Not form.	S	S			

## PROPERTIES AND REACTIONS

L R = laevo-rotatory; D R = dextro-rot.; S = soluble;

Name and Formula.		Source.	Crystn.	Rotat. in Alcoh.
Compl. quinoidine.	Paricine $C_{16}H_{18}N_2O$	C. succirub.	Amorph.	..
	Paytine $C_{21}H_{24}N_2O$	Payta bark	Hy. crs.	L R
	Paytamine $C_{21}H_{24}N_2O$	" "	Amorph.	..
	Cusconine $C_{23}H_{26}N_2O_4$	Cusco bark	Hy. crs.	L R
	Aricine $C_{23}H_{26}N_2O_4$	" "	Crs.	..
	Quinicine $C_{20}H_{24}N_2O_2$	Isom. with quinine and cinchonine, formed by heating their resp. disulphates	Amorph.	Alc.-chlorm.
	Cinchonicine $C_{20}H_{24}N_2O$		Anhy.	$S_D + 25.8$
	Apodiquinicine $C_{40}H_{46}N_4O_3$		..	$S_D + 20.1$
			Amorph.	$S_D + \text{---}$

OF CINCHONA ALKALOIDS—*continued*.

s = sparingly S; F = fluorescent salts; Hy. = hydrated.

Thall. Test.	Solubility.			Other Solvents.	Remarks.
	Alcoh.	Ether.	Chlorm.		
..	..	S		..	Salts amorph.
..	..	S			
..	..	S			
..	S	s	S	..	Oxalate uncry. as most salts. Melts 188° C.
..	..	S	S	..	Oxalate soluble and crys.
Form.	S	S	S	Am. salts	Acid sol. ppd. by NaClO. ppd. by KCyS.
Not form.	S	S	S	Am. salts	Many salts crys. Acid sol. ppd. by NaClO.
Form.	S	S	S	..	Sol. F.

# PROPERTIES AND REACTIONS OF

\* On adding  $\text{KClO}_3$  or  $\text{HNO}_3$ . C = cold ; H = hot ;

Name and Formula.	Colour reactions with			
	$\text{HNO}_3$ 1·42 S. G	Conc. $\text{H}_2\text{SO}_4$ .	$\text{Fe}_2\text{Cl}_6$ neutr.	Fröhde's reagent.
Morphine $\text{C}_{17}\text{H}_{19}\text{NO}_3$	Orange disappears with $\text{Na}_2\text{S}_2\text{O}_3$ .	Nil C. Red violet to dirty green H. *Violet blue to dark red.	Blue	Violet to blue and dirty grn.
Apomorphine $\text{C}_{17}\text{H}_{17}\text{NO}_2$	Red or red-violet	..	Pink	Deep green to violet.
Pseudomorphine $\text{C}_{17}\text{H}_{19}\text{NO}_4$	Org. red to yellow	Nil C. H green or purple to red.	Blue	..
Codeine $\text{C}_{18}\text{H}_{21}\text{NO}_3$	Yellow ?	Blue. *Bld. red	Nil	Dirty grn to blue and yell.
Apocodeine $\text{C}_{18}\text{H}_{19}\text{NO}_2$	..	..	..	..
Narcotine $\text{C}_{22}\text{H}_{23}\text{NO}_7$	Red	Colourless to yellow C. Org. red to blue H. *Carmine.	Nil	Yell. green
Narceine $\text{C}_{23}\text{H}_{29}\text{NO}_9$	Yellow	Amber to dark red. *Nil.	..	Yell. to nil
Thebaine $\text{C}_{19}\text{H}_{21}\text{NO}_3$	Deep red	Blood red to yellow. Olive green H.	..	Blood red to yellow.
Papaverine $\text{C}_{21}\text{H}_{21}\text{NO}_4$	Nil	Violet blue fading slowly. I.	..	* Violet blue to nil.

# CHIEF OPIUM ALKALOIDS.

S = solub.; s = sparingly S; I = insol.; sl nearly I.

Reqd. to dissolve 1 of alkaloid.										Remarks.
Alcoh.	Ether.	Chlorf.	Benzene.	Amyl alcoh.	Petrol. spt.	Hot water.	Cold water.	Dilute NaHO.	Dilute AmHO.	
50 C 30 H	s	90	I	100 C SH	I	500 H	sl	S	s	Yellow coln. with Iodic acid, deepened by AmHO; blue on add. starch if 1 in 1000 present.
S	S	S	..	..	..	s	s	S	S	Soln. in dil. alk. turns black. Soln. in alcohol turns green.
sl	I	I	S	..	..	I	I	S	I	Sol. in cold $H_2SO_4$ gives crys. pp. on dilution.
S	S	S	12	7	sl	17	75	s	As	With $H_2SO_4$ blue on long standing.
S	S	S	..	..	..	I	I		Aq	With $HNO_3$ statements vary.
100 C 20 H	50 C 20 H	3	25	300	sl	7000	sl	I	I	Yell.-red with Cl and AmHO.
945C SH	I	s	I	sl	I	200	375	S	s	
10	S	18	19	60	I	I	I	I	I	Syn. paramorphine.
sl	I	I	S	..	..	I	I	S	I	Insolbty characteristic. * Heating sometimes necess., sol. in cold $H_2SO_4$ , milky on dilution.

# PROPERTIES AND REACTIONS OF THE STRYCHNOS ALKALOIDS.

S = soluble; s = sparingly S; I = insoluble; -I nearly I.

Name and Formula.	Source.	Reqd. to dissolve 1 of alkaloid.							Properties and Reactions.
		Alcoh.	Ether.	Chlorf.	Benzene.	Petr. Spt.	Hot Aq.	Cold Aq.	
Strychnine $C_{21}H_{22}N_2O_2$	S. Nuxvomica, S. Ignatia (seeds).	100	s	10	250	350	2500	0 0	Free base crys., non-volat., laevo-rotat.; the salts mostly sol. in alcoh. Selenenium's reagent completely ppt. this alkali., as do chromates. No colour with cold conc. $H_2SO_4$ , but highly characteristic reaction with this and certain oxidising substances, e.g. $MnO_2$ , $K_2Cr_2O_7$ , $PbO_2$ , $KMnO_4$ . The colour change is from purple blue to purple crimson, and cherry red. Salts intensely bitter. The best analytical solvent for strychn. and brucine is ether-chloroform.
Brucine $C_{23}H_{26}N_2O_4$	Same as Strychnine.	S	110	4	60	120	..	1650	Free base crys.; melts $115^\circ C$ , sublimes $242^\circ C$ . Less intensely poisonous than strychnine. It forms a soluble chromate, and gives rose colouration with $H_2SO_4$ and oxid. reagents. It gives a blood red coloration with strong $HNO_3$ . Separated from strychnine by alcohol or by chromate reagent.
Curarine ?	S. taxifera	S	I	s	I	..	..	S	Free base crys. Intensely poisonous, if injected. Chromate imperfectly ppt. Reaction with $H_2SO_4$ and oxid. reagents simulates strychnine. Separation from strychnine by ammonia, strychnine being dissolved.



# PROPERTIES AND REACTIONS OF SOME NON-VOLATILE ALKALOIDS (VEGETABLE).

S = soluble; s = sparingly S; I = insol.; sI nearly I; H = hot; C = cold.

Name and Formula.	Source.	Solubility.						Characters.
		Alcoh.	Ether.	Chlorf.	Benzene.	Petr. Spt.	Water.	
Aconitine $C_{34}H_{43}NO_{12}$	Aconitum Napellus.	S	S	S	S	I	10 H 150 C	Violently poisonous; $\frac{1}{10}$ gr. fatal. Contracts pupil.
Atropine $C_{17}H_{23}NO_3$	Atropa Belladonna (deadly nightshade).	..	S	S	..	..	..	Poisonous; 1 gr. fatal. Dilates the pupil.
Bobérine $C_{18}H_{21}NO_3$	Nectandra Rodiei.	..	S	S	S	..	..	Febrifuge. ? Identical with Paricine.
Berberine $C_{20}H_{17}NO_4$	Var. sp. of Berberideæ.	..	I	s	s	I	S	Tonic. Sol. in amyl. alcohol.
Caffeine $C_8H_{10}N_2O_4$	{ Tea and coffee, Kola nuts.	s	s	S	S	s	SH	Syn. Theine. Stimulant, poisonous in excess. Rather volatil.
Cocaine								
	Erythroxylon coca.							
Colchicine $C_{17}H_{23}NO_6$ ?	Colchicum autumnale.	S	S	S	S	I	S	Very poisonous; symptoms resemble veratrine.
Cytisine $C_{15}H_{27}N_3O$	Cytisus Laburnum.	..	..	..	..	..	..	Poisonous; giddiness, spasms, vomiting.

PROPERTIES AND REACTIONS OF SOME NON-VOLATILE ALKALOIDS—*continued*.

Name and Formula.	Source.	Solubility.						Characters.
		Alcoh.	Ether.	Chlorf.	Benzene.	Petr. Spt.	Water.	
Daturine $C_{17}H_{23}NO_3$	Datura Stramonium (also Henbane).	..	..	..	..	..	..	Syn. Hyoscyamine; also Duboisine from certain species of Duboisia containing it. Poison. Resembles Atropine. Dilates pupil.
Emetine $C_{30}H_{44}N_2O_4$	Cephaëlis Ipecacuanha.	S	S	S	S	S	s	Emetic; poisonous in excess.
Physostigmine $C_{15}H_{21}N_3O_2$	Physostig. faba (Calabar bean)	..	S	S	S	..	s	Syn. Eserine. Poisonous. Strongly contracts pupil.
Pilocarpine $C_{23}H_{34}N_4O_4$	Pilocarpus pennatifolius.	..	..	..	..	..	..	Diaphoretic, sialagogue.
Piperine $C_{17}H_{19}NO_3$	Pepper	..	s	S	S	S	sl	Melts about 100° C.
Theobromine $C_7H_8N_4O_2$	Theobroma Cacao.	..	..	..	..	..	..	Resembles Caffeine. Poisonous in excess.
Veratrine $C_{37}H_{53}NO_{11}$	Veratrum offic. &c. (Sabadilla).	S	S	S	S	..	sl	Produces vomiting, frothing at the mouth; and sneezing if inhaled.

## PROPERTIES AND REACTIONS OF SOME VOLATILE VEGETABLE ALKALOIDS.

Name and Formula.	Source.	Solubility.					Characters.
		Alcohol.	Ether.	Chlorf.	Benzene.	Water.	
Conine ( $C_8H_{14}$ ) <sup>u</sup> HN	Conium maculatum (Hemlock)	S	S	S	S		Liquid. Boils 163° C. Density .88. Vaporises in air at ord. temps. and distils with water or alcohol. Odour mousy. White amorph. pp., sol. in acetic acid, with $HgCl_2$ . Brown pp. with $AgNO_3$ . Coagul. albumen. Very poisonous. Dilates pupil.
Nicotine $C_{10}H_{14}N_2$	Genus Nicotiana (Tobacco).	S	S	S	S	S	Liquid. Boils 240° C. Volatile and boils as Conine. Density 1.027. Lævo-rotat. Forms chloro-plat.; Conine not. Cryst. pp. with $HgCl_2$ . White pp. with $AgNO_3$ . Poisonous. Smell of tobacco. Dilates pupil.

PROPERTIES AND REACTIONS OF SOME VOLATILE VEGETABLE ALKALOIDS—  
*continued.*

Name and Formula.	Source.	Solubility.					Characters.
		Alcoh.	Ether.	Chlorf.	Benzene.	Water.	
Lobeline	<i>Lobelia inflata</i> (Indian tobacco).	S	S	S	S	S	Semi-liquid. Expectorant and emetic to poisonous. Contracts pupil. Smell of lobelia. $\text{HgCl}_2$ no pp., $\text{AgNO}_3$ white pp.
Methylamine $(\text{CH}_3)\text{H}_2\text{N}$	<i>Mercurialis annua</i> and <i>M. perennis</i> , and various reactions.	..	..	..	..	S	Gas with smell like $\text{NH}_3$ and reactions closely resembling $\text{NH}_3$ throughout.
Sparteine $\text{C}_{15}\text{H}_{26}\text{N}$	<i>Cytisus scoparius</i> (Broom).	..	..	..	..	s	Oily. $D > 1$ . Boils $288^\circ \text{C}$ . Forms emulsi-on-plat. Narcotic poison. Can be distilled. Taste bitter.
Trimethylamine. $(\text{CH}_3)_3\text{N}$	Occurs with methylamine, also in ergot, stale fish, &c.	..	..	..	..	..	Oily liquid. Boils $9^\circ \text{C}$ . Smell of decayed fish.

THE ATOMIC WEIGHTS OF THE ELEMENTS AS GIVEN IN THE  
B.P., THE U.S.P., AND AS RECALCULATED BY F. W. CLARKE.

N.B.—The "equivalents" (U.S.P.) are the values to be given to the symbols in the old formulae, and not equivalents as compared with the hydrogen atom.

Name.	Symbol.	B.P.	U.S.P.		F. W. O.
			At. Wt.	Equiv.	
Aluminium ..	Al	27	27	13.5	27.009
Antimony ..	Sb	120	120	120	119.955
Arsenic ..	As	75	74.9	74.9	74.918
Barium ..	Ba	137	136.8	68.4	136.763
Beryllium ..	Be	—	9	9	9.085
Bismuth ..	Bi	209	210	210	207.523
Boron ..	B	11	11	11	10.941
Bromine ..	Br	80	79.8	79.8	79.768
Cadmium ..	Cd	—	111.8	55.9	111.835
Cesium ..	Cs	—	132.6	132.6	132.583
Calcium ..	Ca	40	40	20	39.990
Carbon ..	C	12	12	6	11.9736
Cerium ..	Ce	141	141	70.5	140.424
Chlorine ..	Cl	35.5	35.4	35.4	35.370
Chromium ..	Cr	52.5	52.4	26.2	52.009
Cobalt *..	Co	—	58.9	29.45	58.887
Copper ..	Cu	63.4	63.2	31.6	63.173
Didymium ..	Di	—	141.6	72.3	142.121
Erbium ..	E	—	165.9	82.95	165.861
Fluorine ..	Fl	—	19	19	18.984
Gallium..	G	—	68.8	34.4	68.554
Gold ..	Au	196.5	196.2	196.2	196.155
Hydrogen ..	H	1	1	1	1.000
Indium ..	In	—	113.4	56.7	113.398
Iodine ..	I	127	126.6	126.6	126.557
Iridium ..	Ir	—	192.7	96.35	192.651
Iron ..	Fe	56	55.9	27.95	55.913
Lanthanum ..	La	—	138.5	138.5	138.019
Lead ..	Pb	207	206.5	103.25	206.471
Lithium ..	Li	7	7	7	7.00073
Magnesium ..	Mg	24	24	12	23.959
Manganese ..	Mn	55	54	27	54.855
Mercury ..	Hg	200	199.7	99.8	199.712

\* Uncertain owing to recent discoveries.

THE ATOMIC WEIGHTS OF THE ELEMENTS AS GIVEN  
IN THE B.P., THE U.S.P., AND AS RECALCULATED BY F. W.  
CLARKE—*continued*.

Name.	Symbol.	B.P.	U.S.P.		F. W. C.
			At. Wt.	Equiv.	
Molybdenum	Mo	—	95.5	42.75	95.527
Nickel* ..	Ni	—	58	29	57.928
Niobium	Nb	—	94	94	—
Nitrogen	N	14	14	14	14.021
Osmium	Os	—	198.5	99.25	198.494
Oxygen ..	O	16	16	8	15.9633
Palladium	Pd	—	105.7	52.85	105.737
Phosphorus	P	31	31	31	30.958
Platinum	Pl	195	194.4	97.2	194.415
Potassium	K	39	39	39	39.019
Rhodium	Rh	—	104.1	52.05	104.055
Rubidium	Rb	—	85.3	85.3	85.251
Ruthenium	Ru	—	104.2	52.1	104.217
Scandium	Sc	—	44	22	43.98
Selenium	Se	—	78.8	39.4	78.797
Silicon ..	Si	—	28	14	28.195
Silver ..	Aq	108	107.7	107.7	107.675
Sodium ..	Na	23	23	23	22.998
Strontium	Sr	—	87.4	43.7	87.374
Sulphur ..	S	32	32	16	31.984
Tantalum	Ta	—	182	182	182.144
Tellurium	Te	—	124	64	127.960
Thallium	Tl	—	203.7	203.7	203.715
Thorium	Th	—	233	116.5	232.020
Tin ..	Sn	118	117.7	58.85	117.698
Titanium	Ti	—	48	24	47.980
Tungsten	W	—	183.6	91.8	183.610
Uranium	U	—	238.5	119.25	238.482
Vanadium	V	—	51.3	51.3	51.256
Ytterbium	Yb	—	172.7	172.7	172.761
Yttrium ..	Y	—	89.8	89.8	88.900
Zinc ..	Zn	65	64.9	32.45	64.9015
Zirconium	Zr	—	90	45	89.367

\* Uncertain owing to recent discoveries.

## OFFICIAL WEIGHTS AND MEASURES.

## The Weights official in the B.P.

**Avoirdupois Weight** is alone recognised in the British Pharmacopœia.

1 GRAIN, gr.	. . .	= .0618 G.
1 OUNCE, oz.	. . .	= 29·3495 G.
1 POUND, lb.	. . .	= 453·5927 G.

## The Measures of Capacity official in the B.P.

IMPERIAL measures are used.

1 MINIM, min. (or m)...	..	..	..	..	..	=	·059 c.c.
1 FLUID DRACHM, fl. drm. (or fl. ʒ)						=	60 m = 3·550 c.c.
1 FLUID OUNCE, fl. oz. (or fl. ʒ)						=	8 fl. ʒ = 28·397 c.c.
1 PINT, O (or pint)						=	20 fl. ʒ = 567·932 c.c.
1 GALLON, (C) (or gall.)						=	8 pints = 160 fl. ʒ = 4513·458 c.c.

These measures, with the exception of the  $\text{m}$  and the  $\text{fl. 3}$ , are directly connected with the avoirdupois weights. Thus the  $\text{fl. 3}$  is the measure of 1 oz. of aq., the pint is the measure of 14 lbs. of water, and the gall. the measure of 10 lbs. of aq., in all cases at  $62^{\circ}\text{F.}$  ( $16.66^{\circ}\text{C.}$ ). The  $\text{fl. 3}$  being the measure of 1 oz. (i. e. of  $437.5$  gr. of aq.), and  $437.5$  being a number not susceptible of convenient subdivision into aliquot parts, the  $\text{m}$  has been introduced by analogy with apothecaries' weight, in which system the oz. is larger than the oz. avoirdupois, and contains 480 gr. The minim is the measure of  $\frac{1}{480}$  of an oz. avoirdupois of water. It is not the measure of 1 gr. of water, but the measure of .9114583 gr. of aq. It is *important to note this difference.*

**The Measure of Length official in the B.P.  
(and U.S.P.).**

1 INCH (in.)	. . . . . = 2·54 C.
1 FOOT (ft.)	. . . . . = 30·48 C.
1 YARD (yd.)	. . . . . = 91·439 C.

These measures are identical in the B.P. and U.S.P. They are founded upon the length of a pendulum beating seconds in vacuo at sea-level in the latitude of London, and at a temp. of 62° F. (16.66° C.). Such a pendulum has a length of 39.1393 inches.

The Weights official in the U.S.P.

The U.S.P. recognises both avoirdupois and apothecaries' or Troy weight.

The GRAIN is the only unit of weight common to the two systems.

Directions for preparing galenical preparations are usually given in parts (p.) and fluid parts (fl. p.) in the U.S.P.

Apothecaries' weight is as follows:—

1 GRAIN, gr.	..	..	..	..	..	..	=	.0648 G.			
1 Scruple, ℥.	..	..	..	..	..	..	=	1.3 G.			
1 Drachm, ℥	..	..	=	3 ℥	=	60 gr.	=	3.9 G.			
1 Ounce Troy, ℥.	=	s ℥	=	24 ℥	=	480 gr.	=	31.10 G.			
1 Pound Troy, lb.	=	12 oz.	Tt.	=	96 ℥	=	288 ℥	=	5760 gr.	=	373.23 G.

The Measures of capacity official in the  
U.S.P.

These are quite distinct from the Measures of Capacity official in the B.P. In the first place the gall. is quite different; the old wine gall. containing 5837.2 gr. of distilled aq. of max. density weighed in air at 62° F., and 30 in. bar. press., being adopted. The pint is the eighth part of this, and it is divided into 16 fl. 3 (not 20). There are 480 min. in an ounce, and the min. is larger than the ml of the B.P.

1 Min.	..	..	..	..	..	..	..	..
1 Fluid Drachm	..	..	..	..	..	60 min.	=	3·75 c.c.
1 Fluid ounce.	..	..	..	..	..	4·0 min.	=	29·57 c.c.
1 Pint = 16 fl. oz.	..	..	..	..	..	76·80 min.	=	473·11 c.c.
1 Gallon	..	..	..	..	..	614·40 min.	=	3785·00 c.c.



## THE METRIC SYSTEM.

The metric system of Weights and Measures is recognised by the B.P. and U.S.P.

## Weights.

1 Milligramme = $\frac{1}{1000}$ of 1 G., or $\cdot 001$ G.	=	$\cdot 015132$ gr.
1 Centigramme = $\frac{1}{100}$ of 1 G., or $\cdot 01$ G.	=	$\cdot 15432$ gr.
1 Decigramme = $\frac{1}{10}$ of 1 G., or $\cdot 1$ G.	=	$1\cdot 5432$ gr.
1 <b>GRAMME, G.</b>		
= weight of 1 c.C. of aq. at $4^{\circ}\text{C.}$ ( $39\cdot 2^{\circ}\text{F.}$ )	=	$15\cdot 432$ gr.
1 Dekagramme = 10 G., rarely used	=	$154\cdot 323$ gr.
1 Hectogramme = 100 G., "	=	$1543\cdot 234$ gr.
1 Kilogramme = 1000 G.	=	$15132\cdot 359$ gr.

## Measures of Capacity.

1 Millilitre (cubic Centimetre) c.C.		
= measure of 1 G. of aq. = $16\cdot 9$ m	=	$16\cdot 23$ min. U.S.P.
1 Centilitre, rarely used, 10 c.C.		
= measure of 10 G. of aq. = $2\cdot 82$ fl. 3	=	$2\cdot 70$ fl. 3 U.S.P.
1 Decilitre, rarely used, 100 c.C.		
= measure of 100 G. of aq. = $3\cdot 52$ fl. 3	=	$3\cdot 38$ fl. 3 U.S.P.
1 <b>Litre, 1000 c.C.</b>		
= measure of 1000 G. of aq. = $1\cdot 7617$ pints	=	$2\cdot 113$ pints U.S.P.

## Measures of Length.

Millimetre .. ..	=	$\frac{1}{1000}$ M., or $\cdot 001$ M.	=	$\cdot 03937$ in.
<b>CENTIMETRE</b> .. ..	=	$\frac{1}{100}$ M., or $\cdot 01$ M.	=	$\cdot 39371$ in.
Decimetre .. ..	=	$\frac{1}{10}$ M., or $\cdot 1$ M.	=	$3\cdot 9371$ in.
<b>Metre</b> .. ..	=	.. ..	=	$39\cdot 371$ in.

The metre is the length of a platinum bar kept in Paris; it is derived from measurement of the earth's meridian at Paris, of which it is one forty-millionth.

**NOTE.**—The foregoing tables supply the equivalents likely to be of use to the Pharmacist. Additional equivalents may be found in the author's 'Chemist's Pocket-book,' Remington's 'Practice of Pharmacy,' and other works.

# TABLE FOR THE CONVERSION OF AVOIRDUPOIS OUNCES INTO GRAINS AND GRAMMES. (G.M.J.)

Oz. Av.	Oz. Av.	Grains.	Grammes.
$\frac{1}{1000}$	•0010	•4375	•0293
$\frac{1}{500}$	•0020	•8750	•0567
$\frac{1}{400}$	•0025	1•0938	•0709
$\frac{3}{1000}$	•0030	1•3125	•0851
$\frac{1}{250}$	•0040	1•7500	•1134
$\frac{1}{200}$	•0050	2•1875	•1418
$\frac{2}{500}$	•0060	2•6250	•1701
$\frac{7}{1000}$	•0070	3•0625	•1985
$\frac{3}{400}$	•0075	3•2812	•2126
$\frac{1}{150}$	•0080	3•5000	•2268
$\frac{9}{1000}$	•0090	3•9375	•2552
$\frac{1}{100}$	•0100	4•3750	•2835
$\frac{2}{50}$	•0200	8•7500	•5670
$\frac{1}{40}$	•0250	10•9375	•7087
$\frac{3}{100}$	•0300	13•1250	•8505
$\frac{1}{25}$	•0400	17•5000	1•1340
$\frac{1}{20}$	•0416	18•2292	1•1812
$\frac{1}{20}$	•0435	19•0217	1•2325
$\frac{1}{20}$	•0454	19•8863	1•2886
$\frac{1}{20}$	•0476	20•8333	1•3500
$\frac{1}{20}$	•0500	21•8750	1•4175
$\frac{1}{20}$	•0526	23•0263	1•4921
$\frac{1}{20}$	•0555	24•3055	1•5750
$\frac{1}{17}$	•0588	25•7353	1•6676

N.B.—This table (which contains every fraction down to one twenty-fifth) may also be used for the mutual conversion of vulgar and decimal fractions; for example: what is the nearest vulgar fraction to 0•72, and what decimal fraction corresponds to  $\frac{13}{17}$ ? The vulgar fraction will be found in the first column, and is equal to 0•72; the decimal fraction will be found in the second column, and is equal to  $\frac{13}{17}$ . It may also be used for finding which of two vulgar fractions is the greater, as for example  $\frac{13}{18}$  and  $\frac{11}{11}$ , which will be found to be equal to 0•72 and 0•72 respectively;  $\frac{13}{18}$  being the greater; and the nearest vulgar fraction to the difference between two other vulgar fractions may be found thus:—find the two given fractions in the first column, and take the difference of the corresponding decimal fractions, which difference may be sought in the second column, and opposite to it will be found the required vulgar fraction, thus:—what is the difference between  $\frac{17}{17}$  and  $\frac{11}{17}$ ? By inspection,  $\frac{17}{17} = 0•3529$ , and  $\frac{11}{17} = 0•6471$ ; then  $0•3529 - 0•6471 = -0•2942$ , which, by inspection, will be found to be nearest to  $\frac{1}{4}$ , the error in this case being less than one hundredth, and in no case greater than  $\frac{1}{50}$ .

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—*continued*.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. 3 3 3
$\frac{3}{16}$	.0600	26.2500	1.7010	
$\frac{1}{4}$	.0625	27.3438	1.7718	
$\frac{1}{8}$	.0666	29.1666	1.8900	
$\frac{7}{104}$	.0700	30.6250	1.9845	
$\frac{1}{12}$	.0714	31.2500	2.0250	
$\frac{2}{10}$	.0750	32.8125	2.1262	
$\frac{1}{13}$	.0769	33.6538	2.1807	
$\frac{2}{25}$	.0800	35.0000	2.2680	
$\frac{1}{14}$	.0833	36.4583	2.3625	
$\frac{2}{23}$	.0870	38.0435	2.4652	
$\frac{9}{106}$	.0900	39.3750	2.5515	
$\frac{1}{11}$	.0909	39.7727	2.5772	
$\frac{8}{11}$	.0952	41.6666	2.7000	
$\frac{1}{10}$	.1000	43.7500	2.8350	
$\frac{2}{19}$	.1053	46.0526	2.9842	
$\frac{1}{9}$	.1111	48.6111	3.1499	
$\frac{2}{17}$	.1176	51.4706	3.3352	
$\frac{3}{25}$	.1200	52.5000	3.4019	
$\frac{1}{8}$	.1250	54.6875	3.5437	
$\frac{3}{23}$	.1304	57.0652	3.6978	
$\frac{1}{7}$	.1333	58.3333	3.7799	
$\frac{3}{22}$	.1363	59.6590	3.8658	
$\frac{1}{7}$	.1429	62.5000	4.0499	
$\frac{3}{20}$	.1500	65.6250	4.2524	
				2 14.688

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—continued.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. $\frac{5}{3}$ 5 3 grains.
$\frac{2}{13}$	•1538	67•3077	4•3615	
$\frac{3}{10}$	•1579	69•0789	4•4762	
$\frac{4}{9}$	•1600	70•0000	4•5359	
$\frac{1}{6}$	•1666	72•9166	4•7219	
$\frac{4}{23}$	•1739	76•0870	4•9304	
$\frac{2}{17}$	•1765	77•2039	5 0029	
$\frac{2}{11}$	•1818	79•5454	5•1545	
$\frac{3}{16}$	•1875	82•0313	5•3155	1 1 2•031
$\frac{4}{21}$	•1905	83•3333	5•3999	
$\frac{1}{5}$	•2000	87•5000	5•6699	
$\frac{5}{24}$	•2083	91•1458	5•9062	
$\frac{4}{19}$	•2105	92•1053	5•9683	
$\frac{3}{14}$	•2113	93•7500	6•0749	
$\frac{5}{23}$	•2174	95•1087	6•1629	
$\frac{6}{9}$	•2222	97•2222	6•2999	
$\frac{7}{21}$	•2272	99•4318	6•4431	
$\frac{7}{13}$	•2308	100•9615	6•5122	
$\frac{4}{17}$	•2353	102•9412	6•6705	
$\frac{5}{21}$	•2381	104•1666	6•7199	
$\frac{6}{25}$	•2400	105•0000	6•8039	
$\frac{1}{4}$	•2500	109•3750	7•0974	1 2 9•375
$\frac{6}{21}$	•2609	114•1301	7•3955	
$\frac{5}{19}$	•2632	115•1316	7•4601	
$\frac{4}{15}$	•2666	116•6666	7•5599	

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—*continued*.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. $\frac{3}{3}$ 3 3 grains.
$\frac{7}{11}$	·2727	119·3181	7·7317	
$\frac{5}{18}$	·2777	121·5277	7·8719	
$\frac{7}{25}$	·2800	122·5000	7·9379	
$\frac{7}{27}$	·2857	125·0000	8·0999	
$\frac{7}{24}$	·2916	127·6042	8·2686	
$\frac{5}{17}$	·2911	128·6765	8·3381	
$\frac{9}{10}$	·3000	131·2500	8·5049	
$\frac{7}{23}$	·3043	133·1522	8·6281	
$\frac{4}{13}$	·3077	134·6154	8·7229	
$\frac{5}{16}$	·3125	136·7188	8·8592	2 0 16·719
$\frac{9}{16}$	·3158	138·1579	8·9525	
$\frac{7}{22}$	·3181	139·2045	9·0203	
$\frac{9}{25}$	·3200	140·0000	9·0719	
$\frac{1}{3}$	·3333	145·8333	9·4498	
$\frac{4}{23}$	·3478	152·1739	9·8607	
$\frac{7}{20}$	·3500	153·1250	9·9223	
$\frac{6}{17}$	·3529	154·4118	10·0057	
$\frac{5}{14}$	·3571	156·2500	10·1248	
$\frac{9}{13}$	·3600	157·5000	10·2058	
$\frac{4}{11}$	·3636	159·0909	10·3089	
$\frac{7}{19}$	·3684	161·1842	10·4446	
$\frac{8}{21}$	·3750	164·0625	10·6311	2 2 4·063
$\frac{9}{21}$	·3810	166·6666	10·7998	
$\frac{5}{13}$	·3846	168·2692	10·9037	

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—*continued*.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. 3 3 3 grains.
$\frac{7}{18}$	.3888	170.1388	11.0248	
$\frac{9}{23}$	.3913	171.1957	11.0933	
$\frac{2}{6}$	.4000	175.0000	11.3398	
$\frac{9}{22}$	.4090	178.9773	11.5975	
$\frac{7}{17}$	.4118	180.1471	11.6733	
$\frac{5}{14}$	.4166	182.2916	11.8123	
$\frac{8}{19}$	.4211	184.2105	11.9366	
$\frac{3}{7}$	.4286	187.5000	12.1498	
$\frac{19}{23}$	.4348	190.2174	12.3259	
$\frac{7}{16}$	.4375	191.4063	12.4029	3 0 11.406
$\frac{11}{25}$	.4400	192.5000	12.4738	
$\frac{4}{9}$	.4444	194.4444	12.5998	
$\frac{9}{20}$	.4500	196.8750	12.7573	
$\frac{5}{11}$	.4545	198.8636	12.8862	
$\frac{11}{24}$	.4583	200.5208	12.9935	
$\frac{6}{13}$	.4615	201.9231	13.0844	
$\frac{7}{18}$	.4666	204.1666	13.2298	
$\frac{8}{17}$	.4706	205.8824	13.3410	
$\frac{9}{16}$	.4737	207.2368	13.4287	
$\frac{19}{21}$	.4762	208.3333	13.4998	
$\frac{11}{23}$	.4783	209.2391	13.5585	
$\frac{12}{25}$	.4800	210.0000	13.6078	
$\frac{1}{3}$	.5000	218.7500	14.1748	3 1 18.750
$\frac{11}{21}$	.5200	227.5000	14.7418	

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. $\frac{3}{3}$ 3 3 grains.
$\frac{13}{23}$	.5217	228.2609	14.7911	
$\frac{11}{21}$	.5238	229.1666	14.8498	
$\frac{10}{19}$	.5263	230.2632	14.9208	
$\frac{9}{17}$	.5294	231.6176	15.0086	
$\frac{8}{15}$	.5300	233.3333	15.1198	
$\frac{7}{13}$	.5385	235.5769	15.2651	
$\frac{12}{24}$	.5416	236.9792	15.3560	
$\frac{6}{11}$	.5454	238.6363	15.4634	
$\frac{11}{20}$	.5500	240.6250	15.5922	
$\frac{5}{9}$	.5555	243.0555	15.7497	
$\frac{14}{26}$	.5600	245.0000	15.8757	
$\frac{9}{16}$	.5625	246.0938	15.9466	4 0 6.094
$\frac{13}{23}$	.5652	247.2826	16.0237	
$\frac{4}{7}$	.5714	250.0000	16.1997	
$\frac{11}{19}$	.5789	253.2895	16.4129	
$\frac{7}{12}$	.5833	255.2083	16.5372	
$\frac{10}{17}$	.5882	257.3529	16.6762	
$\frac{13}{23}$	.5909	258.5227	16.7520	
$\frac{8}{13}$	.6000	262.5000	17.0097	
$\frac{14}{23}$	.6087	266.3044	17.2562	
$\frac{11}{18}$	.6111	267.3611	17.3247	
$\frac{8}{13}$	.6154	269.2308	17.4459	
$\frac{11}{18}$	.6190	270.8333	17.5497	
$\frac{5}{8}$	.6250	273.4375	17.7185	4 1 13.438

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—*continued*.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. $\frac{3}{5}$ 3 3 grains
$\frac{12}{16}$	.6316	276.3158	17.9050	
$\frac{7}{11}$	.6363	278.4001	18.0406	
$\frac{19}{21}$	.6400	280.6000	18.1437	
$\frac{9}{14}$	.6429	281.2500	18.2247	
$\frac{11}{17}$	.6471	283.0882	18.3438.	
$\frac{13}{20}$	.6500	284.3750	18.4272	
$\frac{15}{23}$	.6522	285.3261	18.4888	
$\frac{2}{3}$	.6666	291.6666	18.8997	
$\frac{17}{25}$	.6800	297.5000	19.2777	
$\frac{18}{23}$	.6818	298.2954	19.3292	
$\frac{13}{19}$	.6842	299.3421	19.3971	
$\frac{11}{16}$	.6875	300.7813	19.4903	5 0 0.781
$\frac{9}{13}$	.6923	302.8846	19.6266	
$\frac{10}{13}$	.6957	304.3478	19.7214	
$\frac{7}{10}$	.7000	306.2500	19.8447	
$\frac{12}{17}$	.7059	308.8235	20.0114	
$\frac{12}{16}$	.7083	309.8958	20.0809	
$\frac{5}{7}$	.7143	312.5000	20.2497	
$\frac{18}{23}$	.7200	315.0000	20.1117	
$\frac{13}{14}$	.7222	315.9722	20.4747	
$\frac{8}{11}$	.7272	318.1818	20.6178	
$\frac{11}{15}$	.7333	320.8333	20.7897	
$\frac{13}{19}$	.7368	322.3684	20.8891	
$\frac{17}{23}$	.7391	323.3696	20.9540	



TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—*continued*.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight, $\frac{5}{3}$ 5 3 grains.
$\frac{2}{3}$	.7500	328.1250	21.2622	5 1 8.125
$\frac{10}{12}$	.7600	332.5000	21.5457	
$\frac{14}{12}$	.7619	333.3333	21.5996	
$\frac{12}{17}$	.7617	334.5588	21.6791	
$\frac{10}{13}$	.7692	336.5385	21.8073	
$\frac{17}{12}$	.7727	338.0681	21.9065	
$\frac{7}{9}$	.7777	340.2777	22.0496	
$\frac{12}{12}$	.7826	342.3913	22.1866	
$\frac{14}{14}$	.7857	343.7500	22.2747	
$\frac{15}{16}$	.7895	345.3947	22.3812	
$\frac{10}{12}$	.7916	346.3542	22.4431	
$\frac{4}{5}$	.8000	350.0000	22.6796	
$\frac{17}{21}$	.8095	354.1666	22.9496	
$\frac{12}{16}$	.8125	355.4688	23.0340	5 2 15.469
$\frac{9}{11}$	.8181	357.9545	23.1951	
$\frac{14}{17}$	.8235	360.2941	23.3467	
$\frac{10}{12}$	.8261	361.4131	23.4192	
$\frac{5}{6}$	.8333	364.5833	23.6246	
$\frac{12}{12}$	.8400	367.5000	23.8136	
$\frac{16}{16}$	.8421	368.4211	23.8733	
$\frac{12}{13}$	.8462	370.1923	23.9881	
$\frac{17}{20}$	.8500	371.8750	24.0971	
$\frac{9}{7}$	.8571	375.0000	24.2996	
$\frac{10}{11}$	.8636	377.8469	24.4837	

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—*continued*.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. $\frac{3}{3}$ $\frac{3}{3}$ $\frac{3}{3}$
$\frac{13}{16}$	·8666	379·1666	24·5696	
$\frac{29}{32}$	·8696	380·4348	24·6518	
$\frac{7}{8}$	·8750	382·8125	24·8058	6 1 2·813
$\frac{23}{24}$	·8800	385·0000	24·9476	
$\frac{15}{17}$	·8824	386·0294	25·0143	
$\frac{8}{9}$	·8888	388·8888	25·1996	
$\frac{17}{19}$	·8947	391·4474	25·3654	
$\frac{9}{10}$	·9000	393·7500	25·5146	
$\frac{19}{21}$	·9048	395·8333	25·6496	
$\frac{10}{11}$	·9090	397·7272	25·7723	
$\frac{21}{23}$	·9130	399·4565	25·8844	
$\frac{11}{12}$	·9166	401·0416	25·9871	
$\frac{22}{24}$	·9200	402·5000	26·0816	
$\frac{12}{13}$	·9231	403·8462	26·1688	
$\frac{13}{14}$	·9286	406·2500	26·3246	
$\frac{14}{15}$	·9333	408·3333	26·4596	
$\frac{15}{16}$	·9375	410·1563	26·5777	6 2 10·156
$\frac{16}{17}$	·9418	411·7617	26·6819	
$\frac{17}{18}$	·9444	413·1944	26·7746	
$\frac{18}{19}$	·9474	414·4737	26·8575	
$\frac{19}{20}$	·9500	415·6250	26·9321	
$\frac{20}{21}$	·9524	416·6666	26·9996	
$\frac{21}{22}$	·9545	417·6136	27·0609	
$\frac{22}{23}$	·9565	418·4783	27 1170	

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—*continued.*

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. $\frac{5}{3}$ 5 3 grains.		
$\frac{33}{34}$	·9583	419·2708	27·1683			
$\frac{34}{35}$	·9600	420·0000	27·2156			
1	1·0	437·5	28·3195	0	7	0 17·5
1 $\frac{1}{4}$	1·25	546·875	35·4369	1	1	0 6·875
1 $\frac{1}{2}$	1·5	656·25	42·5243	1	2	2 16·25
1 $\frac{3}{4}$	1·75	765·625	49·6117	1	4	2 5·625
2	2·0	875·0	56·6990	1	6	1 15·0
2 $\frac{1}{4}$	2·25	984·375	63·7864	2	0	1 4·375
2 $\frac{1}{2}$	2·5	1093·75	70·8738	2	2	0 13·75
2 $\frac{3}{4}$	2·75	1203·125	77·9612	2	4	0 3·125
3	3·0	1312·5	85·0486	2	5	2 12·5
3 $\frac{1}{4}$	3·25	1421·875	92·1359	2	7	2 1·875
3 $\frac{1}{2}$	3·5	1531·25	99·2233	3	1	1 11·25
3 $\frac{3}{4}$	3·75	1640·625	106·3107	3	3	1 0·625
4	4·0	1750·0	113·3981	3	5	0 10·0
4 $\frac{1}{4}$	4·25	1859·375	120·4855	3	6	2 19·375
4 $\frac{1}{2}$	4·5	1968·75	127·5728	4	0	2 8·75
4 $\frac{3}{4}$	4·75	2078·125	134·6602	4	2	1 18·125
5	5·0	2187·5	141·7476	4	4	1 7·5
5 $\frac{1}{4}$	5·25	2296·875	148·8350	4	6	0 16·875
5 $\frac{1}{2}$	5·5	2406·25	155·9224	5	0	0 6·25
5 $\frac{3}{4}$	5·75	2515·625	163·0097	5	1	2 15·625
6	6·0	2625·0	170·0971	5	3	2 5·0
6 $\frac{1}{4}$	6·25	2734·375	177·1845	5	5	1 14·375

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—continued.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. 3 3 3 grains.		
6½	6.5	2843.75	184.2719	5	7	1 3.75
6¾	6.75	2953.125	191.3593	6	1	0 13.125
7	7.0	3062.5	198.4466	6	3	0 2.5
7¼	7.25	3171.875	205.5340	6	4	2 11.875
7½	7.5	3281.250	212.6214	6	6	2 1.25
7¾	7.75	3390.625	219.7088	7	0	1 10.625
8	8.0	3500.0	226.7962	7	2	1 0.0
8¼	8.25	3609.375	233.8835	7	4	0 9.375
8½	8.5	3718.75	240.9709	7	5	2 18.75
8¾	8.75	3828.125	248.0583	7	7	2 8.125
9	9.0	3937.5	255.1457	8	1	1 17.5
9¼	9.25	4046.875	262.2331	8	3	1 6.875
9½	9.5	4156.250	269.3204	8	5	0 16.25
9¾	9.75	4265.625	276.4078	8	7	0 5.625
10	10.0	4375.0	283.4952	9	0	2 15.0
10¼	10.25	4484.375	290.5826	9	2	2 4.375
10½	10.5	4593.75	297.6700	9	4	1 13.75
10¾	10.75	4703.125	304.7573	9	6	1 3.125
11	11.0	4812.5	311.8447	10	0	0 12.5
11¼	11.25	4921.875	318.9321	10	2	0 1.875
11½	11.5	5031.25	326.0195	10	3	2 11.25
11¾	11.75	5140.625	333.1069	10	5	2 0.625
12	12.0	5250.0	340.1942	10	7	1 10.0
12¼	12.25	5359.375	347.2816	11	1	0 19.375

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—*continued*.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. $\frac{3}{5}$ 5 9	grains.
12½	12.5	5168.75	351.3690	11 3 0	8.75
12½	12.75	5578.125	361.4564	11 4 2	18.125
13	13.0	5687.5	368.5438	11 6 2	7.5
13½	13.25	5796.875	375.6311	12 0 1	16.875
13½	13.5	5906.25	382.7185	12 2 1	6.25
13¾	13.75	6015.625	389.8059	12 4 0	15.625
14	14.0	6125.0	396.8933	12 6 0	5.0
14½	14.25	6234.375	403.9807	12 7 2	14.375
14½	14.5	6343.75	411.0680	13 1 2	3.75
14¾	14.75	6453.125	418.1554	13 3 1	13.125
15	15.0	6562.5	425.2428	13 5 1	2.5
15½	15.25	6671.875	432.3302	13 7 0	11.875
15½	15.5	6781.25	439.4176	14 1 0	1.25
15¾	15.75	6890.625	446.5049	14 2 2	10.625
16	16.0	7000.0	453.5923	14 4 2	0.0
16½	16.25	7109.375	460.6797	14 6 1	9.375
16½	16.5	7218.75	467.7671	15 0 0	18.75
16¾	16.75	7328.125	474.8545	15 2 0	8.125
17	17.0	7437.5	481.9418	15 3 2	17.5
17½	17.25	7546.875	489.0292	15 5 2	6.875
17½	17.5	7656.25	496.1166	15 7 1	16.25
17¾	17.75	7765.625	503.2040	16 1 1	5.625
18	18.0	7875.0	510.2914	16 3 0	15.0
18½	18.25	7984.375	517.3787	16 5 0	4.375

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—*continued*.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. $\frac{3}{3}$ 3 3		
18½	18.5	8093.75	524.4661	16	6	2 13.75
18¾	18.75	8203.125	531.5535	17	0	2 3.125
19	19.0	8312.5	538.6409	17	2	1 12.5
19¼	19.25	8421.875	545.7283	17	4	1 1.875
19½	19.5	8531.25	552.8156	17	6	0 11.25
19¾	19.75	8640.625	559.9030	18	0	0 0.625
20	20.0	8750.0	566.9904	18	1	2 10.0
20¼	20.25	8859.375	574.0778	18	3	1 19.375
20½	20.5	8968.75	581.1652	18	5	1 8.75
20¾	20.75	9078.125	588.2525	18	7	0 18.125
21	21.0	9187.5	595.3399	19	1	0 7.5
21¼	21.25	9296.875	602.4273	19	2	2 16.875
21½	21.5	9406.25	609.5147	19	4	2 6.25
21¾	21.75	9515.625	616.6021	19	6	1 15.625
22	22.0	9625.0	623.6894	20	0	1 5.0
22¼	22.25	9734.375	630.7768	20	2	0 14.375
22½	22.5	9843.75	637.8642	20	4	0 3.75
22¾	22.75	9953.125	644.9516	20	5	2 13.125
23	23.0	10062.5	652.0390	20	7	2 2.5
23¼	23.25	10171.875	659.1263	21	1	1 11.875
23½	23.5	10281.25	666.2137	21	3	1 1.25
23¾	23.75	10390.625	673.3011	21	5	0 10.625
24	24.0	10500.0	680.3885	21	7	0 0.0
24¼	24.25	10609.375	687.4759	22	0	2 9.375

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—continued.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. $\frac{3}{5}$ 3 grains.		
24½	24·5	10718·75	694·5632	22	2	1 18·75
24¾	24·75	10828·125	701·6506	22	4	1 8·125
25	25·0	10937·5	708·7380	22	6	0 17·5
25½	25·25	11046·875	715·8254	23	0	0 6·875
25¾	25·50	11156·25	722·9128	23	1	2 16·25
25¾	25·75	11265·625	730·0001	23	3	2 5·625
26	26·0	11375·0	737·0875	23	5	1 15·0
26¼	26·25	11484·375	744·1719	23	7	1 4·375
26½	26·50	11593·75	751·2623	24	1	0 13·75
26¾	26·75	11703·125	758·3197	24	3	0 3·125
27	27·0	11812·5	765·4370	24	4	2 12·5
27¼	27·25	11921·875	772·5244	24	6	2 1·875
27½	27·5	12031·25	779·6118	25	0	1 11·25
27¾	27·75	12140·625	786·6992	25	2	1 0·625
28	28·0	12250·0	793·7866	25	4	0 10·0
28¼	28·25	12359·375	800·8739	25	5	2 19·375
28½	28·5	12468·75	807·9613	25	7	2 8·75
28¾	28·75	12578·125	815·0487	26	1	1 18·125
29	29·0	12687·5	822·1361	26	3	1 7·5
29¼	29·25	12796·875	829·2235	26	5	0 16·875
29½	29·5	12906·25	836·3108	26	7	0 6·25
29¾	29·75	13015·625	843·3982	27	0	2 15·625
30	30·0	13125·0	850·4856	27	2	2 5·0
30¼	30·25	13234·375	857·5730	27	4	1 14·375

TABLE FOR THE CONVERSION OF AVOIRDUPOIS  
OUNCES INTO GRAINS AND GRAMMES—continued.

Oz. Av.	Oz. Av.	Grains.	Grammes.	Apothecaries' Weight. $\frac{3}{3}$ $\frac{5}{5}$ $\frac{9}{9}$ grains.		
30½	30.5	13343.75	864.6604	27	6	1 3.75
30¾	30.75	13453.125	871.7477	28	0	0 13.125
31	31.0	13562.5	878.8351	28	2	0 2.5
31¼	31.25	13671.875	885.9225	28	3	2 11.875
31½	31.5	13781.25	893.0099	28	5	2 1.25
31¾	31.75	13890.625	900.0973	28	7	1 10.625
32	32.0	14000.0	907.1846	29	1	1 0.0
32¼	32.25	14109.375	914.2720	29	3	0 9.375
32½	32.5	14218.75	921.3594	29	4	2 18.75
32¾	32.75	14328.125	928.4468	29	6	2 8.125
33	33.0	14437.5	935.5342	30	0	1 17.5
33¼	33.25	14546.875	942.6215	30	2	1 6.875
33½	33.5	14656.25	949.7089	30	4	0 16.25
33¾	33.75	14765.625	956.7963	30	6	0 5.625
34	34.0	14875.0	963.8837	30	7	2 15.0
34¼	34.25	14984.375	970.9711	31	1	2 4.375
34½	34.5	15093.75	978.0584	31	3	1 13.75
34¾	34.75	15203.125	985.1458	31	5	1 3.125
35	35.0	15312.5	992.2332	31	7	0 12.5
35¼	35.25	15421.875	999.3206	32	1	0 1.875
35½	35.5	15531.25	1006.4080	32	2	2 11.25
35¾	35.75	15640.625	1013.4953	32	4	2 0.625
36	36.0	15750.0	1020.5827	32	6	1 10.0



TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES.  
(G.M.J.)

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz. Avoirdupois Grains.
$\frac{1}{1000}$	·0010	0·48	·0311	·48
$\frac{1}{500}$	·0020	0·96	·0622	·96
$\frac{1}{400}$	·0025	1·20	·0778	1·20
$\frac{1}{1000}$	·0030	1·44	·0933	1·44
$\frac{1}{250}$	·0040	1·92	·1244	1·92
$\frac{1}{200}$	·0050	2·40	·1555	2·40
$\frac{1}{500}$	·0060	2·88	·1866	2·88
$\frac{7}{1000}$	·0070	3·36	·2177	3·36
$\frac{3}{400}$	·0075	3·60	·2333	3·60
$\frac{1}{125}$	·0080	3·84	·2488	3·84
$\frac{9}{1000}$	·0090	4·32	·2799	4·32
$\frac{1}{100}$	·0100	4·8	·3110	4·8
$\frac{1}{50}$	·0200	9·6	·6221	9·6
$\frac{1}{40}$	·0250	12·0	·7776	12·0
$\frac{3}{100}$	·0300	14·4	·9331	14·4
$\frac{1}{25}$	·0400	19·2	1·2441	19·2
$\frac{1}{24}$	·0416	20·0	1·2960	20·0
$\frac{1}{23}$	·0435	20·87	1·3523	20·87
$\frac{1}{22}$	·0454	21·818	1·4138	21·818
$\frac{1}{21}$	·0476	22·857	1·4811	22·857
$\frac{1}{20}$	·0500	24·0	1·5552	24·0
$\frac{1}{19}$	·0526	25·263	1·6370	25·263
$\frac{1}{18}$	·0555	26·667	1·7280	26·667
$\frac{1}{17}$	·0588	28·235	1·8296	28·235
				$\frac{1}{16}$ 0·891

TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz. Avoirdupois Grains.
$\frac{1}{16}$	·0625	30·0	1·9440	$\frac{1}{16}$
$\frac{1}{15}$	·0666	32·0	2·0736	$\frac{1}{16}$
$\frac{1}{14}$	·0714	34·286	2·2217	$\frac{1}{16}$
$\frac{1}{13}$	·0769	36·923	2·3926	$\frac{1}{16}$
$\frac{2}{25}$	·0800	38·4	2·4883	$\frac{1}{16}$
$\frac{1}{12}$	·0833	40·0	2·5920	$\frac{1}{16}$
$\frac{2}{23}$	·0870	41·739	2·7047	$\frac{1}{16}$
$\frac{1}{11}$	·0909	43·636	2·8276	$\frac{1}{16}$
$\frac{2}{21}$	·0952	45·714	2·9622	$\frac{1}{16}$
$\frac{1}{10}$	·1000	48·0	3·1104	$\frac{1}{16}$
$\frac{2}{16}$	·1053	50·526	3·2741	$\frac{1}{16}$
$\frac{1}{9}$	·1111	53·333	3·4559	$\frac{1}{16}$
$\frac{2}{17}$	·1176	56·471	3·6592	$\frac{1}{8}$
$\frac{1}{8}$	·1200	57·6	3·7324	$\frac{1}{8}$
$\frac{1}{7}$	·1250	60·0	3·8879	$\frac{1}{8}$
$\frac{2}{23}$	·1304	62·609	4·0570	$\frac{1}{8}$
$\frac{2}{15}$	·1333	64·0	4·1471	$\frac{1}{8}$
$\frac{3}{25}$	·1363	65·455	4·2414	$\frac{1}{8}$
$\frac{1}{6}$	·1429	68·571	4·4434	$\frac{1}{8}$
$\frac{2}{20}$	·1500	72·0	4·6655	$\frac{1}{8}$
$\frac{2}{13}$	·1538	73·846	4·7852	$\frac{1}{8}$
$\frac{3}{16}$	·1579	75·789	4·9111	$\frac{1}{8}$
$\frac{1}{5}$	·1600	76·8	4·9766	$\frac{1}{8}$
$\frac{1}{4}$	·1666	80·0	5·1839	$\frac{1}{8}$

TABLE FOR THE CONVERSION OF APOTHECARIES  
(Troy) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz.	Avoirdupois Grains.
$\frac{4}{16}$	•1739	83•478	5•4093	$\frac{1}{16}$	1•447
$\frac{5}{17}$	•1765	84•706	5•4889	$\frac{2}{16}$	2•675
$\frac{6}{18}$	•1818	87•273	5•6552	$\frac{3}{16}$	5•242
$\frac{7}{19}$	•1875	90•0	5•8319	$\frac{4}{16}$	7•969
$\frac{8}{20}$	•1905	91•429	5•9245	$\frac{5}{16}$	9•398
$\frac{9}{21}$	•2000	96•0	6•2207	$\frac{6}{16}$	13•969
$\frac{1}{8}$	•2053	100•0	6•4799	$\frac{7}{16}$	17•969
$\frac{5}{24}$	•2105	101•053	6•5481	$\frac{8}{16}$	19•022
$\frac{6}{25}$	•2143	102•857	6•6650	$\frac{9}{16}$	20•826
$\frac{7}{26}$	•2174	104•348	6•7616	$\frac{10}{16}$	22•317
$\frac{8}{27}$	•2222	106•667	6•9119	$\frac{11}{16}$	24•636
$\frac{9}{28}$	•2272	109•091	7•0690	$\frac{12}{16}$	27•060
$\frac{1}{13}$	•2308	110•769	7•1777	$\frac{1}{2}$	1•394
$\frac{4}{17}$	•2353	112•941	7•3185	$\frac{1}{2}$	3•566
$\frac{5}{21}$	•2381	114•286	7•4056	$\frac{1}{2}$	4•911
$\frac{6}{25}$	•2400	115•2	7•4648	$\frac{1}{2}$	5•825
$\frac{1}{2}$	•2500	120•0	7•7759	$\frac{1}{2}$	10•625
$\frac{7}{23}$	•2609	125•217	8•1140	$\frac{1}{2}$	15•842
$\frac{8}{26}$	•2632	126•316	8•1851	$\frac{1}{2}$	16•941
$\frac{9}{26}$	•2666	128•0	8•2943	$\frac{1}{2}$	18•625
$\frac{1}{11}$	•2727	130•909	8•4828	$\frac{1}{2}$	21•534
$\frac{5}{18}$	•2777	133•333	8•6399	$\frac{1}{2}$	23•958
$\frac{7}{22}$	•2800	134•4	8•7090	$\frac{1}{2}$	25•025
$\frac{2}{7}$	•2857	137•143	8•8867	$\frac{1}{2}$	27•768

TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz. Apothecaries Grains.
$\frac{7}{24}$	·2916	140·0	9·0719	‡ 30·625
$\frac{5}{17}$	·2941	141·176	9·1481	‡ 31·801
$\frac{3}{10}$	·3000	144·0	9·3311	‡ 31·625
$\frac{7}{23}$	·3013	146·087	9·4663	‡ 36·712
$\frac{4}{13}$	·3077	147·692	9·5703	‡ 39·317
$\frac{5}{16}$	·3125	150·0	9·7193	‡ 40·625
$\frac{9}{16}$	·3153	151·579	9·8222	‡ 42·204
$\frac{7}{23}$	·3181	152·727	9·8966	‡ 43·352
$\frac{8}{23}$	·3200	153·6	9·9531	‡ 44·225
$\frac{1}{3}$	·3333	160·0	10·3678	‡ 50·625
$\frac{8}{23}$	·3478	166·956	10·8186	‡ 57·581
$\frac{7}{20}$	·3500	168·0	10·8862	‡ 58·625
$\frac{9}{17}$	·3529	169·412	10·9777	‡ 60·037
$\frac{5}{14}$	·3571	171·429	11·1094	‡ 62·054
$\frac{9}{25}$	·3600	172·8	11·1973	‡ 63·425
$\frac{4}{11}$	·3636	174·545	11·3104	‡ 65 170
$\frac{7}{19}$	·3681	176·842	11·4592	‡ 67·467
$\frac{2}{3}$	·3750	180·0	11·6638	‡ 70·625
$\frac{9}{21}$	·3810	182·857	11·8490	‡ 73·482
$\frac{5}{13}$	·3846	184·615	11·9629	‡ 73·210
$\frac{7}{18}$	·3888	186·667	12·0958	‡ 77·292
$\frac{9}{23}$	·3913	187·826	12·1709	‡ 78·451
$\frac{2}{3}$	·4000	192·0	12·4414	‡ 82·625
$\frac{9}{13}$	·4090	196·364	12·7212	‡ 86·989

TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz. Apothecaries Grains.
$\frac{7}{17}$	•4118	197•647	12•8073	† 88•272
$\frac{8}{18}$	•4166	200•0	12•9598	† 90•625
$\frac{8}{19}$	•4211	202•105	13•0962	† 92•730
$\frac{3}{7}$	•4286	203•714	13•3301	† 96•339
$\frac{10}{23}$	•4348	203•696	13•5233	† 99•321
$\frac{7}{16}$	•4375	210•0	13•6078	† 100•625
$\frac{11}{25}$	•4400	211•2	13•6855	† 101•825
$\frac{4}{9}$	•4444	213•333	13•8238	† 103•958
$\frac{9}{26}$	•4500	216•00	13•9966	† 106•625
$\frac{5}{11}$	•4545	218•182	14•1380	† 108•807
$\frac{11}{24}$	•4583	220•0	14•2558	† 1•250
$\frac{6}{13}$	•4615	221•538	14•3555	† 2•788
$\frac{7}{15}$	•4666	224•0	14•5150	† 5•250
$\frac{8}{17}$	•4706	225•882	14•6369	† 7•132
$\frac{9}{19}$	•4737	227•368	14•7332	† 8•618
$\frac{10}{21}$	•4762	228•571	14•8112	† 9•821
$\frac{11}{23}$	•4783	229•565	14•8756	† 10•815
$\frac{12}{25}$	•4800	230•4	14•9297	† 11•650
†	•5000	240•0	15•5517	† 21•250
$\frac{13}{27}$	•5200	249•6	16•1738	† 30•850
$\frac{14}{29}$	•5217	250•435	16•2279	† 31•685
$\frac{15}{31}$	•5238	251•429	16•2923	† 32•679
$\frac{16}{33}$	•5263	252•632	16•3703	† 33•882
$\frac{17}{35}$	•5294	254•118	16•4666	† 35•368

TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz.	Avoirdupois Grains.
$\frac{1}{12}$	•5343	256•0	16•5885	$\frac{1}{4}$	37•250
$\frac{1}{10}$	•5385	258•462	16•7180	$\frac{1}{2}$	39•712
$\frac{1}{8}$	•5416	260•0	16•8477	$\frac{3}{4}$	41•250
$\frac{1}{6}$	•5454	261•818	16•9655	$\frac{1}{2}$	43•068
$\frac{1}{5}$	•5500	264•0	17•1069	$\frac{1}{2}$	45•250
$\frac{1}{4}$	•5555	266•667	17•2797	$\frac{1}{2}$	47•917
$\frac{1}{3}$	•5600	268•8	17•4180	$\frac{1}{2}$	50•050
$\frac{1}{2}$	•5625	270•0	17•4957	$\frac{1}{2}$	51•250
$\frac{2}{3}$	•5652	271•304	17•5802	$\frac{1}{2}$	52•554
$\frac{4}{7}$	•5711	274•286	17•7734	$\frac{1}{2}$	55•526
$\frac{1}{2}$	•5789	277•895	18•0073	$\frac{1}{2}$	59•145
$\frac{1}{2}$	•5833	280•0	18•1437	$\frac{1}{2}$	61•250
$\frac{1}{2}$	•5882	282•353	18•2962	$\frac{1}{2}$	63•603
$\frac{1}{2}$	•5909	283•636	18•3793	$\frac{1}{2}$	64•886
$\frac{1}{2}$	•6000	288•0	18•6621	$\frac{1}{2}$	69•250
$\frac{1}{2}$	•6087	292•174	18•9326	$\frac{1}{2}$	73•424
$\frac{1}{2}$	•6111	293•333	19•0077	$\frac{1}{2}$	74•583
$\frac{1}{2}$	•6151	295•385	19•1406	$\frac{1}{2}$	76•635
$\frac{1}{2}$	•6190	297•143	19•2545	$\frac{1}{2}$	78•393
$\frac{1}{2}$	•6250	300•0	19•4397	$\frac{1}{2}$	81•250
$\frac{1}{2}$	•6316	303•158	19•6443	$\frac{1}{2}$	84•408
$\frac{1}{2}$	•6363	305•155	19•7931	$\frac{1}{2}$	86•705
$\frac{1}{2}$	•6400	307•2	19•9062	$\frac{1}{2}$	88•450
$\frac{1}{2}$	•6429	308•571	19•9951	$\frac{1}{2}$	89•821

TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz. Apothecaries Grains.
$\frac{11}{17}$	·6471	316·588	20·1253	† 91·838
$\frac{13}{20}$	·6500	312·0	20·2173	† 93·250
$\frac{13}{20}$	·6522	313·013	20·2849	† 94·293
$\frac{2}{3}$	·6666	320·0	20·7357	† 101·250
$\frac{17}{25}$	·6800	326·4	21·1504	† 107·650
$\frac{13}{22}$	·6818	327·273	21·2069	† 108·523
$\frac{13}{19}$	·6842	328·421	21·2813	† 0·296
$\frac{11}{16}$	·6875	330·0	21·3837	† 1·875
$\frac{9}{13}$	·6923	332·308	21·5332	† 4·183
$\frac{10}{23}$	·6957	333·913	21·6372	† 5·788
$\frac{7}{10}$	·7000	336·0	21·7725	† 7·875
$\frac{12}{17}$	·7050	338·823	21·9554	† 10·698
$\frac{17}{24}$	·7083	340·0	22·0316	† 11·875
$\frac{5}{7}$	·7143	342·857	22·2168	† 14·732
$\frac{18}{25}$	·7200	345·6	22·3945	† 17·475
$\frac{13}{18}$	·7222	346·667	22·4636	† 18·542
$\frac{4}{11}$	·7272	349·091	22·6207	† 20·966
$\frac{11}{15}$	·7333	352·0	22·8092	† 23·875
$\frac{14}{19}$	·7368	353·684	22·9184	† 25·559
$\frac{17}{23}$	·7391	354·783	22·9895	† 26·658
$\frac{2}{3}$	·7500	360·0	23·3276	† 31·875
$\frac{10}{26}$	·7600	364·8	23·6387	† 36·675
$\frac{10}{21}$	·7619	365·714	23·6979	† 37·589
$\frac{13}{17}$	·7647	367·059	23·7850	† 38·934

TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES —  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz. Apothecary Grains.
$\frac{10}{13}$	.7692	369.231	23.9258	$\frac{1}{4}$ 41.106
$\frac{11}{31}$	.7727	370.909	24.0345	$\frac{1}{4}$ 42.784
$\frac{1}{3}$	.7777	373.233	24.1916	$\frac{1}{4}$ 45.208
$\frac{18}{23}$	.7826	375.652	24.3419	$\frac{1}{4}$ 47.527
$\frac{11}{14}$	.7857	377.143	24.4385	$\frac{1}{4}$ 49.018
$\frac{15}{19}$	.7895	378.947	24.5554	$\frac{1}{4}$ 50.822
$\frac{12}{24}$	.7916	380.0	24.6236	$\frac{1}{4}$ 51.875
$\frac{4}{6}$	.8000	384.0	24.8228	$\frac{1}{4}$ 55.875
$\frac{17}{21}$	.8025	388.571	25.1790	$\frac{1}{4}$ 60.446
$\frac{13}{16}$	.8125	390.0	25.2716	$\frac{1}{4}$ 61.875
$\frac{9}{11}$	.8181	392.727	25.4453	$\frac{1}{4}$ 64.602
$\frac{14}{17}$	.8235	395.294	25.6146	$\frac{1}{4}$ 67.169
$\frac{10}{23}$	.8261	396.522	25.6942	$\frac{1}{4}$ 68.397
$\frac{5}{6}$	.8333	400.0	25.9196	$\frac{1}{4}$ 71.875
$\frac{21}{22}$	.8400	403.2	26.1269	$\frac{1}{4}$ 75.075
$\frac{10}{19}$	.8421	404.210	26.1924	$\frac{1}{4}$ 76.085
$\frac{11}{13}$	.8462	406.154	26.3183	$\frac{1}{4}$ 78.029
$\frac{17}{26}$	.8500	408.0	26.4380	$\frac{1}{4}$ 79.875
$\frac{9}{10}$	.8571	411.429	26.6601	$\frac{1}{4}$ 83.304
$\frac{10}{22}$	.8636	414.545	26.8621	$\frac{1}{4}$ 86.420
$\frac{12}{12}$	.8666	416.0	26.9564	$\frac{1}{4}$ 87.875
$\frac{20}{23}$	.8696	417.391	27.0465	$\frac{1}{4}$ 89.266
$\frac{7}{8}$	.8750	420.0	27.2156	$\frac{1}{4}$ 91.875
$\frac{24}{24}$	.8800	422.4	27.3711	$\frac{1}{4}$ 94.275



TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz.	Avoirdupois Grains.
$\frac{13}{17}$	·8824	423·529	27·4443	$\frac{3}{4}$	95·401
$\frac{8}{9}$	·8888	426·667	27·6176	$\frac{3}{4}$	98·512
$\frac{17}{16}$	·8917	429·474	27·8291	$\frac{3}{4}$	101·349
$\frac{9}{10}$	·9000	432·0	27·9932	$\frac{3}{4}$	103·875
$\frac{19}{11}$	·9018	431·286	28·1413	$\frac{3}{4}$	106·161
$\frac{10}{11}$	·9090	436·364	28·2759	$\frac{3}{4}$	108·239
$\frac{21}{23}$	·9130	438·261	28·3988	1	0·761
$\frac{11}{12}$	·9166	440·0	28·5115	1	2·500
$\frac{23}{26}$	·9200	441·6	28·6152	1	4·100
$\frac{12}{13}$	·9231	443·077	28·7109	1	5·577
$\frac{13}{14}$	·9286	445·711	28·8818	1	8·211
$\frac{14}{15}$	·9333	448·0	29·0299	1	10·500
$\frac{15}{16}$	·9375	450·0	29·1595	1	12·500
$\frac{16}{17}$	·9418	451·765	29·2739	1	14·265
$\frac{17}{18}$	·9444	453·333	29·3755	1	15·833
$\frac{18}{19}$	·9471	454·737	29·4665	1	17·237
$\frac{20}{20}$	·9500	456·0	29·5483	1	18·500
$\frac{20}{21}$	·9524	457·143	29·6224	1	19·613
$\frac{21}{22}$	·9545	458·182	29·6897	1	20·500
$\frac{22}{23}$	·9565	459·130	29·7512	1	21·630
$\frac{23}{24}$	·9583	460·0	29·8075	1	22·500
$\frac{24}{25}$	·9600	460·8	29·8594	1	23·300
1	1·0	480	31·1035	1	42·5
$1\frac{1}{4}$	1·125	540	34·9914	1	102·5

TABLE FOR THE CONVERSION OF APOTHECARIES  
(Troy) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy	Oz. Troy.	Grains.	Grammes.	Oz.	Avoirdupois Grams.
1½	1.25	600	38.8794	1½	53.125
1½	1.375	660	42.7673	1½	3.75
1½	1.5	720	46.6552	1½	63.75
1½	1.625	780	50.5432	1½	14.375
1½	1.75	840	54.4311	1½	74.375
1½	1.875	900	58.3191	2	25.0
2	2.0	960	62.2070	2	85.0
2½	2.125	1020	66.0949	2½	35.625
2½	2.25	1080	69.9829	2½	95.625
2½	2.375	1140	73.8708	2½	46.25
2½	2.5	1200	77.7587	2½	106.25
2½	2.625	1260	81.6467	2½	56.875
2½	2.75	1320	85.5346	3	7.5
2½	2.875	1380	89.4226	3	67.5
3	3.0	1440	93.3105	3½	18.125
3½	3.125	1500	97.1984	3½	78.125
3½	3.25	1560	101.0864	3½	28.75
3½	3.375	1620	104.9743	3½	88.75
3½	3.5	1680	108.8622	3½	39.375
3½	3.625	1740	112.7502	3½	99.375
3½	3.75	1800	116.6381	4	50.0
3½	3.875	1860	120.5261	4½	0.625
4	4.0	1920	124.4140	4½	60.625
4½	4.125	1980	128.3019	4½	11.25

TABLE FOR THE CONVERSION OF APOTHECARIES  
(Troy) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz.	Avoirdupois Grains.
4½	4.25	2040	132.1899	4½	71.25
4¾	4.375	2100	136.0778	4¾	21.875
4⅞	4.5	2160	139.9657	4⅞	81.875
4⅘	4.625	2220	143.8537	5	32.5
4½	4.75	2280	147.7416	5	92.5
4¾	4.875	2340	151.6296	5½	43.125
5	5.0	2400	155.5175	5½	103.125
5½	5.125	2460	159.4054	5½	53.75
5¼	5.25	2520	163.2934	5¾	4.375
5½	5.375	2580	167.1813	5¾	64.375
5¾	5.5	2640	171.0692	6	15.0
5⅘	5.625	2700	174.9572	6	75.0
5½	5.75	2760	178.8451	6¼	25.625
5¾	5.875	2820	182.7330	6¼	85.625
6	6.0	2880	186.6210	6½	36.25
6¼	6.125	2940	190.5089	6½	96.25
6½	6.25	3000	194.3969	6¾	46.875
6¾	6.375	3060	198.2848	6¾	106.875
6⅞	6.5	3120	202.1727	7	57.5
6⅘	6.625	3180	206.0607	7¼	8.125
6½	6.75	3240	209.9486	7¼	68.125
6¾	6.875	3300	213.8365	7½	18.75
7	7.0	3360	217.7245	7½	78.75
7½	7.125	3420	221.6124	7¾	29.375

TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz.	Avoirdupois Grains.
7½	7·25	3180	225·5004	7½	89·375
7½	7·375	3540	229·3883	8	40·0
7½	7·5	3600	233·2762	8	100·0
7½	7·625	3660	237·1642	8½	50·625
7½	7·75	3720	241·0521	8½	1·25
7½	7·875	3780	244·9400	8½	61·25
8	8·0	3840	248·8280	8½	11·875
8½	8·125	3900	252·7159	8½	71·875
8½	8·25	3960	256·6039	9	22·5
8½	8·375	4020	260·4918	9	82·5
8½	8·5	4080	264·3797	9½	33·125
8½	8·625	4140	268·2677	9½	93·125
8½	8·75	4200	272·1556	9½	43·75
8½	8·875	4260	276·0435	9½	103·75
9	9·0	4320	279·9315	9½	54·375
9½	9·125	4380	283·8194	10	5·0
9½	9·25	4440	287·7074	10	65·0
9½	9·375	4500	291·5953	10½	15·625
9½	9·5	4560	295·4832	10½	75·625
9½	9·625	4620	299·3712	10½	26·25
9½	9·75	4680	303·2591	10½	86·25
9½	9·875	4740	307·1470	10½	36·875
10	10·000	4800	311·0350	10½	96·875
10½	10·125	4860	314·9229	11	47·5

TABLE FOR THE CONVERSION OF APOTHECARIES  
(POUNCE) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz. Avoirdupois Grains.
10 $\frac{1}{4}$	10.25	4920	318.8109	11 107.5
10 $\frac{1}{2}$	10.375	4980	322.6988	11 $\frac{1}{4}$ 58.125
10 $\frac{3}{4}$	10.5	5040	326.5867	11 $\frac{1}{2}$ 8.75
10 $\frac{7}{8}$	10.625	5100	330.4747	11 $\frac{3}{4}$ 68.75
10 $\frac{7}{8}$	10.75	5160	334.3626	11 $\frac{7}{8}$ 19.375
10 $\frac{7}{8}$	10.875	5220	338.2505	11 $\frac{7}{8}$ 79.375
11	11.0	5280	342.1385	12 30.0
11 $\frac{1}{8}$	11.125	5340	346.0264	12 90.0
11 $\frac{1}{4}$	11.25	5400	349.9143	12 $\frac{1}{4}$ 40.625
11 $\frac{1}{2}$	11.375	5460	353.8023	12 $\frac{1}{2}$ 100.625
11 $\frac{3}{4}$	11.5	5520	357.6902	12 $\frac{3}{4}$ 51.25
11 $\frac{3}{4}$	11.625	5580	361.5782	12 $\frac{3}{4}$ 1.875
11 $\frac{3}{4}$	11.75	5640	365.4661	12 $\frac{3}{4}$ 61.875
11 $\frac{3}{4}$	11.875	5700	369.3540	13 12.5
12	12.0	5760	373.2420	13 72.5
12 $\frac{1}{8}$	12.125	5820	377.1299	13 $\frac{1}{8}$ 23.125
12 $\frac{1}{4}$	12.25	5880	381.0178	13 $\frac{1}{4}$ 83.125
12 $\frac{1}{2}$	12.375	5940	384.9058	13 $\frac{1}{2}$ 33.75
12 $\frac{3}{4}$	12.5	6000	388.7937	13 $\frac{3}{4}$ 93.75
12 $\frac{3}{4}$	12.625	6060	392.6817	13 $\frac{3}{4}$ 44.375
12 $\frac{7}{8}$	12.75	6120	396.5696	13 $\frac{7}{8}$ 104.375
12 $\frac{7}{8}$	12.875	6180	400.4575	14 55.0
13	13.0	6240	404.3455	14 $\frac{1}{4}$ 5.625
13 $\frac{1}{8}$	13.125	6300	408.2334	14 $\frac{1}{8}$ 65.625

TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz.	Avoirdupois Grains.
13½	13·25	6360	412·1213	14½	16·25
13¾	13·375	6420	416·0093	14¾	76·25
13⅞	13·5	6480	419·8972	14⅞	26·875
13⅘	13·625	6540	423·7852	14⅘	86·875
13½	13·75	6600	427·6731	15	37·5
13¾	13·875	6660	431·5610	15	97·5
14	14·0	6720	435·4490	15½	48·125
14½	14·125	6780	439·3369	15½	108·125
14¾	14·25	6840	443·2248	15¾	58·75
14⅞	14·375	6900	447·1128	15⅞	9·375
14⅘	14·5	6960	451·0007	15⅘	69·375
14½	14·625	7020	454·8887	16	20·0
14¾	14·75	7080	458·7766	16	80·0
14⅞	14·875	7140	462·6645	16½	30·625
15	15·0	7200	466·5525	16½	90·625
15½	15·125	7260	470·4404	16½	41·25
15¾	15·25	7320	474·3283	16¾	101·25
15⅞	15·375	7380	478·2163	16⅞	51·875
15⅘	15·5	7440	482·1042	17	2·5
15½	15·625	7500	485·9922	17	62·5
15¾	15·75	7560	489·8801	17½	13·125
15⅞	15·875	7620	493·7680	17½	73·125
16	16·0	7680	497·6560	17½	23·75
16½	16·125	7740	501·5439	17½	83·75

TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz.	Avoirdupois Grains.
16½	16.25	7800	505.4318	17½	34.375
16⅝	16.375	7860	509.3198	17¾	94.375
16⅞	16.5	7920	513.2077	18	45.0
16⅞	16.625	7980	517.0956	18	105.0
16¾	16.75	8040	520.9836	18¼	55.625
16¾	16.875	8100	524.8715	18½	6.25
17	17.0	8160	528.7595	18½	66.25
17½	17.125	8220	532.6474	18¾	16.875
17¼	17.25	8280	536.5353	18¾	76.875
17½	17.375	8340	540.4233	19	27.5
17¾	17.5	8400	544.3112	19	87.5
17¾	17.625	8460	548.1991	19¼	33.125
17¾	17.75	8520	552.0871	19½	98.125
17¾	17.875	8580	555.9750	19½	48.75
18	18.0	8640	559.8630	19¾	103.75
18½	18.125	8700	563.7509	19¾	59.375
18½	18.25	8760	567.6388	20	10.0
18¾	18.375	8820	571.5268	20	70.0
18¾	18.5	8880	575.4147	20¼	20.625
18¾	18.625	8940	579.3026	20½	80.625
18¾	18.75	9000	583.1906	20¾	31.25
18¾	18.875	9060	587.0785	20¾	91.25
19	19.0	9120	590.9665	20¾	41.875
19¼	19.125	9180	594.8544	20¾	101.875

TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz.	Avoirdupois Grains.
19½	19·25	9,240	598·7423	21	52·5
19¾	19·375	9,300	602·6303	21½	3·125
19⅞	19·5	9,360	606·5182	21¾	63·125
19⅘	19·625	9,420	610·4061	21⅘	13·75
19½	19·75	9,480	614·2941	21½	73·75
19¾	19·875	9,540	618·1820	21¾	24·375
20	20·0	9,600	622·0700	21⅞	84·375
20¼	20·125	9,660	625·9579	22	35·0
20½	20·25	9,720	629·8458	22	95·0
20¾	20·375	9,780	633·7338	22¼	45·625
20⅞	20·5	9,840	637·6217	22½	105·625
20⅘	20·625	9,900	641·5096	22¾	56·25
20½	20·75	9,960	645·3976	22⅞	6·875
20¾	20·875	10,020	649·2855	22⅞	66·875
21	21·0	10,080	653·1735	23	17·5
21¼	21·125	10,140	657·0614	23	77·5
21½	21·25	10,200	660·9493	23¼	28·125
21¾	21·375	10,260	664·8373	23½	88·125
21⅘	21·5	10,320	668·7252	23¾	38·75
21½	21·625	10,380	672·6131	23⅞	98·75
21¾	21·75	10,440	676·5011	23⅞	49·375
21⅞	21·875	10,500	680·3890	24	0·0
22	22·0	10,560	684·2769	24	60·0
22¼	22·125	10,620	688·1649	24½	10·625



TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz. Avoirdupois Grains.
22½	22.25	10,680	692.0528	24½ 70.625
22½	22.375	10,740	695.9108	24½ 21.25
22½	22.5	10,800	699.8287	24½ 81.25
22½	22.625	10,860	703.7166	24½ 31.875
22½	22.75	10,920	707.6046	24½ 91.875
22½	22.875	10,980	711.4925	25 42.5
23	23.0	11,040	715.3804	25 102.5
23½	23.125	11,100	719.2684	25½ 53.125
23½	23.25	11,160	723.1563	25½ 3.75
23½	23.375	11,220	727.0443	25½ 63.75
23½	23.5	11,280	730.9322	25½ 14.375
23½	23.625	11,340	734.8201	25½ 74.375
23½	23.75	11,400	738.7081	26 25.0
23½	23.875	11,460	742.5960	26 85.0
24	24.0	11,520	746.4839	26½ 35.625
24½	24.125	11,580	750.3719	26½ 95.625
24½	24.25	11,640	754.2598	26½ 46.25
24½	24.375	11,700	758.1478	26½ 106.25
24½	24.5	11,760	762.0357	26½ 56.875
24½	24.625	11,820	765.9236	27 7.5
24½	24.750	11,880	769.8116	27 67.5
24½	24.875	11,940	773.6995	27½ 18.125
25	25.0	12,000	777.5874	27½ 78.125
25½	25.125	12,060	781.4754	27½ 28.75

TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz. Avoirdupois Grains.
25½	25·25	12,120	785·3633	27½ 88·75
25¾	25·375	12,150	789·2513	27¾ 39·375
25⅞	25·5	12,210	793·1392	27⅞ 99·375
25⅘	25·625	12,300	797·0271	28 50·0
25½	25·75	12,360	800·9151	28½ 0·625
25¾	25·875	12,420	804·8030	28¾ 60·625
26	26·0	12,480	808·6909	28⅞ 11·25
26¼	26·125	12,540	812·5789	28¾ 71·25
26½	26·25	12,600	816·4668	28¾ 21·875
26¾	26·375	12,660	820·3548	28¾ 81·875
26⅞	26·5	12,720	824·2427	29 32·5
26¾	26·625	12,780	828·1306	29 92·5
26⅞	26·75	12,840	832·0186	29½ 43·125
26¾	26·875	12,900	835·9065	29½ 103·125
27	27·0	12,960	839·7944	29½ 53·75
27¼	27·125	13,020	843·6824	29¾ 4·375
27½	27·25	13,080	847·5703	29¾ 61·375
27¾	27·375	13,140	851·4582	30 15·0
27⅞	27·5	13,200	855·3462	30 75·0
27¾	27·625	13,260	859·2341	30½ 25·625
27¾	27·75	13,320	863·1221	30½ 85·625
27¾	27·875	13,380	867·0100	30½ 36·25
28	28·0	13,440	870·8979	30½ 96·25
28¼	28·125	13,500	874·7859	30½ 46·875

TABLE FOR THE CONVERSION OF APOTHECARIES  
(Troy) Ounces INTO GRAINS AND GRAMMES —  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz.	Avoirdupois Grains.
2½	23.25	13,560	878.6733	3½	106.875
2¾	23.375	13,620	882.5617	3½	57.5
2¾	23.5	13,680	886.4497	3½	8.125
2¾	23.625	13,740	890.3376	3½	63.125
2¾	23.75	13,800	894.2256	3½	18.75
2¾	23.875	13,860	898.1135	3½	78.75
29	29.0	13,920	902.0014	3½	29.375
29½	29.125	13,980	905.8894	3½	89.375
29½	29.25	14,040	909.7773	32	40.0
29¾	29.375	14,100	913.6652	32	100.0
29¾	29.5	14,160	917.5532	32½	50.625
29¾	29.625	14,220	921.4411	32½	1.25
29¾	29.75	14,280	925.3291	32½	61.25
29¾	29.875	14,340	929.2170	32½	11.875
30	30.0	14,400	933.1049	32½	71.875
30½	30.125	14,460	936.9929	33	22.5
30½	30.25	14,520	940.8808	33	82.5
30¾	30.375	14,580	944.7687	33½	33.125
30¾	30.5	14,640	948.6567	33½	93.125
30¾	30.625	14,700	952.5446	33½	43.75
30¾	30.75	14,760	956.4326	33½	103.75
30¾	30.875	14,820	960.3205	33½	54.375
31	31.0	14,880	964.2084	34	5.0
31½	31.125	14,940	968.0964	34	65.0

TABLE FOR THE CONVERSION OF APOTHECARIES  
(Troy) Ounces INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz.	Avoirdupois Grains.
31½	31·25	15,000	971·9343	31½	15·625
31½	31·375	15,060	975·8722	31½	75·625
31½	31·5	15,120	979·7602	31½	26·25
31½	31·625	15,180	983·6481	31½	86·25
31½	31·75	15,240	987·5361	31½	36·875
31½	31·875	15,300	991·4240	31½	96·875
32	32·0	15,360	995·3119	35	47·5
32½	32·125	15,420	999·1999	35	107·5
32½	32·25	15,480	1003·0878	35½	58·125
32½	32·375	15,540	1006·9757	35½	8·75
32½	32·5	15,600	1010·8637	35½	68·75
32½	32·625	15,660	1014·7516	35½	19·375
32½	32·75	15,720	1018·6395	35½	79·375
32½	32·875	15,780	1022·5275	36	30·0
33	33·0	15,840	1026·4154	36	90·0
33½	33·125	15,900	1030·3034	36½	40·625
33½	33·25	15,960	1034·1913	36½	100·625
33½	33·375	16,020	1038·0792	36½	51·25
33½	33·5	16,080	1041·9672	36½	1·875
33½	33·625	16,140	1045·8551	36½	61·875
33½	33·75	16,200	1049·7430	37	12·5
33½	33·875	16,260	1053·6310	37	72·5
34	34·0	16,320	1057·5189	37½	23·125
34½	34·125	16,380	1061·4069	37½	83·125

TABLE FOR THE CONVERSION OF APOTHECARIES  
(TROY) OUNCES INTO GRAINS AND GRAMMES—  
*continued.*

Oz. Troy.	Oz. Troy.	Grains.	Grammes.	Oz. Apothecaries Grains.
34½	34.25	16,440	1065.2948	37½ 33.75
34¾	34.375	16,500	1069.1827	37¾ 93.75
34⅞	34.5	16,560	1073.0707	37⅞ 44.375
34⅘	34.625	16,620	1076.9586	27¾ 101.375
34½	34.75	16,680	1080.8465	38 35.0
34¾	34.875	16,740	1084.7345	38½ 5.625
35	35.0	16,800	1088.6224	38¾ 65.625
35½	35.125	16,860	1092.5104	38¾ 16.25
35¾	35.25	16,920	1096.3983	38¾ 76.25
35⅞	35.375	16,980	1100.2862	38¾ 26.875
35¾	35.5	17,040	1104.1742	38¾ 86.875
35¾	35.625	17,100	1108.0621	39 37.5
35¾	35.75	17,160	1111.9500	39 97.5
35¾	35.875	17,220	1115.8380	39½ 48.125
36	36.0	17,280	1119.7259	39½ 109.125

TABLE FOR THE CONVERSION OF PERCENTAGE INTO  
CWTs. AND LBS. PER TON, AND INTO LBS. PER  
CWT.

Per Cent.	Per Ton.		Per Cent.	Per Cwt.		Per Ton.		Per Cwt.
	Cwts.	Lbs.		Cwts.	Lbs.	Cwts.	Lbs.	
1	—	22·4	26	5	22·4	5	22·4	29·12
2	—	44·8	27	5	44·8	5	44·8	30·24
3	—	67·2	28	5	67·2	5	67·2	31·36
4	—	89·6	29	5	89·6	5	89·6	32·48
5	1	0	30	6	0	6	0	33·60
6	1	22·4	31	6	22·4	6	22·4	34·72
7	1	44·8	32	6	44·8	6	44·8	35·84
8	1	67·2	33	6	67·2	6	67·2	36·96
9	1	89·6	34	6	89·6	6	89·6	38·08
10	2	0	35	7	0	7	0	39·20
11	2	22·4	36	7	22·4	7	22·4	40·32
12	2	44·8	37	7	44·8	7	44·8	41·44
13	2	67·2	38	7	67·2	7	67·2	42·56
14	2	89·6	39	7	89·6	7	89·6	43·68
15	3	0	40	8	0	8	0	44·80
16	3	22·4	41	8	22·4	8	22·4	45·92
17	3	44·8	42	8	44·8	8	44·8	47·04
18	3	67·2	43	8	67·2	8	67·2	48·16
19	3	89·6	44	8	89·6	8	89·6	49·28
20	4	0	45	9	0	9	0	50·40
21	4	22·4	46	9	22·4	9	22·4	51·52
22	4	44·8	47	9	44·8	9	44·8	52·64
23	4	67·2	48	9	67·2	9	67·2	53·76
24	4	89·6	49	9	89·6	9	89·6	54·88
25	5	0	50	10	0	10	0	56·00

TABLE FOR THE CONVERSION OF PERCENTAGE INTO  
CWTS. AND LBS., &c.—*continued.*

Per Cent.	Per Ton.		Per Cwt.		Per Cent.	Per Ton.		Per Cwt.	
	Cwts.	Lbs.	Cwts.	Lbs.		Cwts.	Lbs.	Cwts.	Lbs.
51	10	22·4	57·12	76	15	22·4	85·12		
52	10	44·8	58·24	77	15	44·8	86·24		
53	10	67·2	59·36	78	15	67·2	87·36		
54	10	89·6	60·48	79	15	89·6	88·48		
55	11	0	61·60	80	16	0	89·60		
56	11	22·4	62·72	81	16	22·4	90·72		
57	11	44·8	63·84	82	16	44·8	91·84		
58	11	67·2	64·96	83	16	67·2	92·96		
59	11	89·6	66·08	84	16	89·6	94·08		
60	12	0	67·20	85	17	0	95·20		
61	12	22·4	68·32	86	17	22·4	96·32		
62	12	44·8	69·44	87	17	44·8	97·44		
63	12	67·2	70·56	88	17	67·2	98·56		
64	12	89·6	71·68	89	17	89·6	99·68		
65	13	0	72·80	90	18	0	100·80		
66	13	22·4	73·92	91	18	22·4	101·92		
67	13	44·8	75·04	92	18	44·8	103·04		
68	13	67·2	76·16	93	18	67·2	104·16		
69	13	89·6	77·28	94	18	89·6	105·28		
70	14	0	78·40	95	19	0	106·40		
71	14	22·4	79·52	96	19	22·4	107·52		
72	14	44·8	80·64	97	19	44·8	108·64		
73	14	67·2	81·76	98	19	67·2	109·76		
74	14	89·6	82·88	99	19	89·6	110·88		
75	15	0	84·00	100	20	0	112·00		

TABLE SHOWING EQUIVALENT RATES PER LB., CWT.,  
AND TON.

Per lb.	Per cwt.	Per ton.		Per lb.	Per cwt.	Per ton.	
		£	s. d.			£	s. d.
d.	2	4	8	6½	58	4	8
1	4	8	12	6½	60	8	16
2	7	0	14	6½	63	0	0
3	9	4	16	7	65	4	8
4	11	8	18	7½	67	8	16
5	14	0	20	7½	70	0	0
6	16	4	22	7½	72	4	8
7	18	8	24	8	74	8	16
8	21	0	26	8½	77	0	0
9	23	4	28	8½	79	4	8
10	25	8	30	8½	81	8	16
11	28	0	32	9	84	0	0
12	30	4	34	9½	86	4	8
13	32	8	36	9½	88	8	16
14	35	0	38	9½	91	0	0
15	37	4	40	10	93	4	8
16	39	8	42	10½	95	8	16
17	42	0	44	10½	98	0	0
18	44	4	46	10½	100	4	8
19	46	8	48	11	102	8	16
20	49	0	50	11½	105	0	0
21	51	4	52	11½	107	4	8
22	53	8	54	11½	109	8	16
23	56	0	56	12	112	0	0

DECIMAL EQUIVALENTS OF PENCE AND SHILLINGS.

Pence.		Shillings.		Pence.		Shillings.	
1	..	=	·04166	4½	..	=	·3750
2	..	=	·08333	5	..	=	·41666
3	..	=	·125	5½	..	=	·45833
4	..	=	·16666	6	..	=	·5
5	..	=	·20832	6½	..	=	·54166
6	..	=	·25	7	..	=	·58333
7	..	=	·29166	7½	..	=	·6250
8	..	=	·33333	8	..	=	·66666

8½	..	=	·70832
9	..	=	·75
9½	..	=	·79166
10	..	=	·83333
10½	..	=	·8750
11	..	=	·91666
11½	..	=	·95833
12	..	=	1·0000



## DECIMAL EQUIVALENTS OF LBS., QRS., AND CWTs.

lbs.	lbs. cwt.	qrs.	lbs. cwt.	qrs.	lbs. cwt.
0 0 $\frac{1}{4}$ = .0045	1 0 = .25	2 0 = .5	3 0 = .75		
0 1 .0089	1 1 .2589	2 1 .5089	3 1 .7589		
0 2 .0179	1 2 .2679	2 2 .5179	3 2 .7679		
0 3 .0268	1 3 .2768	2 3 .5268	3 3 .7768		
0 4 .0357	1 4 .2857	2 4 .5357	3 4 .7857		
0 5 .0446	1 5 .2946	2 5 .5446	3 5 .7946		
0 6 .0536	1 6 .3036	2 6 .5536	3 6 .8036		
0 7 .0625	1 7 .3125	2 7 .5625	3 7 .8125		
0 8 .0714	1 8 .3214	2 8 .5714	3 8 .8214		
0 9 .0803	1 9 .3303	2 9 .5803	3 9 .8303		
0 10 .0893	1 10 .3393	2 10 .5893	3 10 .8393		
0 11 .0982	1 11 .3482	2 11 .5982	3 11 .8482		
0 12 .1071	1 12 .3571	2 12 .6071	3 12 .8571		
0 13 .1161	1 13 .3661	2 13 .6161	3 13 .8661		
0 14 .125	1 14 .375	2 14 .625	3 14 .875		
0 15 .1339	1 15 .3839	2 15 .6339	3 15 .8839		
0 16 .1429	1 16 .3929	2 16 .6429	3 16 .8929		
0 17 .1518	1 17 .4018	2 17 .6518	3 17 .9018		
0 18 .1607	1 18 .4107	2 18 .6607	3 18 .9107		
0 19 .1696	1 19 .4196	2 19 .6696	3 19 .9196		
0 20 .1786	1 20 .4286	2 20 .6786	3 20 .9286		
0 21 .1875	1 21 .4375	2 21 .6875	3 21 .9375		
0 22 .1964	1 22 .4464	2 22 .6964	3 22 .9464		
0 23 .2054	1 23 .4554	2 23 .7054	3 23 .9554		
0 24 .2143	1 24 .4643	2 24 .7143	3 24 .9643		
0 25 .2232	1 25 .4732	2 25 .7232	3 25 .9732		
0 26 .2322	1 26 .4822	2 26 .7322	3 26 .9822		
0 27 .2411	1 27 .4911	2 27 .7411	3 27 .9911		

## DECIMAL EQUIVALENTS OF POUNDS AND OUNCES.

ozs.	lbs.	ozs.	lbs.	ozs.	lbs.
$\frac{1}{4}$ .015625	3 .1875	$\frac{1}{4}$ .0625	10 .625	$\frac{1}{4}$ .01375	81375
$\frac{1}{2}$ .03125	3 $\frac{1}{4}$ .21875	$\frac{1}{2}$ .125	10 $\frac{1}{2}$ .65625	$\frac{1}{2}$ .0275	875
$\frac{3}{4}$ .046875	4 .25	$\frac{3}{4}$ .1875	11 .6875	$\frac{3}{4}$ .04125	90625
1 .0625	4 $\frac{1}{4}$ .28125	1 .25	11 $\frac{1}{4}$ .71875	1 .09375	9375
1 $\frac{1}{4}$ .09375	5 .3125	1 $\frac{1}{2}$ .75	12 .75	1 $\frac{1}{4}$ .096875	96875
2 .125	5 $\frac{1}{4}$ .34375	2 .25	12 $\frac{1}{2}$ .78125	2 .19375	19375
2 $\frac{1}{4}$ .15625	6 .375	2 $\frac{1}{2}$ .8125	13 .8125	2 .29375	29375

TABLE SHOWING A COMPARISON OF THE WEIGHTS AND MEASURES OF THE METRIC SYSTEM WITH THOSE OF VARIOUS COUNTRIES.

Measures of Length.		Measures of Surface.		Measures of Capacity.		Measures or Weight.		Where used.
Name.	Value in Metres.	Name.	Value in Sq. Metres.	Name.	Value.	Name.	Value in Grams	
Metre	—	Sq. metre	—	Cub. metre	—	Gram	—	{ France, Germany, Italy, (England), Holland.
—	—	—	—	Litre	—	—	—	
Foot	·30479	Sq. foot	·092894	Cub. foot	·02831 cub. metre.	Pound	453·592	{ England, United States.
—	—	—	—	Gallon	4·543458 litres	—	—	
Foot	·316103	Sq. foot	·0999	Cub. foot	·0309 cub. metre	Pound	560·012	{ Austria.
Ell	2·465 A. ft.	—	—	—	—	—	—	
Foot	·30479	—	—	Wedro	12·299 litres.	Pound	409·52	{ Russia.
Elle	·71119	—	—	—	—	—	—	
Foot	·30000	Sq. foot	·0900	Malter	150 litres	Pound	500·00	{ Switzerland.
—	—	—	—	Cub. foot	·0270 cub. metre	—	—	

COMPARISON OF THE GRAM WITH THE MEDICINE-GRAINS OF VARIOUS COUNTRIES.

One gram equals—  
 15·432 English grains.  
 16·116 Danish grains.  
 15·36 Dutch and Belgic grains.  
 13·71 Austrian grains.  
 16·103 Russian and Swiss grains.

One gram equals—  
 20·05 Spanish grains.  
 16·16 Swedish grains.  
 20·373 Portuguese grains.  
 20·815 Italian grains.  
 16·419 Old Prussian grains.

TABLE OF COMPARISON OF QUANTITIES OF INGREDIENTS PER PINT, LITRE, &c.  
—STRENGTH OF TINCTURES, &c. (G.M.J.)

Avoir. wts. per pint.	G. per litre.	Gr. per 3 <sup>d</sup> .	No. of m con g. one gr.	No. of c. C. contg. one G.	Example.
gr. 20	2·286	1·0	480·000	437·50	Morph. Hyd. in Tr. Chlorof. et Morph.
gr. 23	3·200	1·4	312·857	312·50	Cochineal in Tr. Cinch. Co.
gr. 30	3·429	1·5	320·000	291·63	Camphor in Tr. Camph. Co.
gr. 40	4·571	2·0	240·000	218·75	Opium and Acid Benz. in Tr. Camph. Co.
gr. 55	6·286	2·75	174·545	159·08	Cochineal in Tr. Card. Co.
gr. 75	8·571	3·75	128·000	116·66	Cinnamon in Tr. Lavand. Co.
gr. 100	11·429	5·0	96·000	87·50	Opium in Tr. Opii Ammoniata.
oz. $\frac{1}{4}$	12·500	5·47	87·771	80·00	Cantharides in Tr. Canth.
gr. 133	15·200	6·65	72·180	65·79	Ext. Nucis Vom. in Tr. Nucis Vom.
gr. 150	17·143	7·5	64·000	58·33	Sandal-wood in Tr. Lavand. Co.
gr. 160	18·286	8·0	60·000	54·68	Quin. Hydrochl. in Tr. Quininae, Quin. Sulph. in Tr. Quin. Am. Aloes in Tr. Benz. Co., Podoph. Resin in Tr. Podoph.

TABLE OF COMPARISON OF QUANTITIES OF INGREDIENTS PER PINT, LITRE, &c.—  
STRENGTH OF TINCTURES, &c.—*continued.*

Avoir- wts. per pint.	G. per litre.	Gr. per ℥i.	No. of m contg. one gr.	No. of c. O. contg. one G.	Example.
gr. 180	20·571	9·0	53·333	48·61	Saffron in Tr. Opii Ammoniata.
oz. ½	25·000	10·94	43·886	40·00	Iodine and KI in Tr. Iodi.
oz. ¾	37·500	16·41	29·257	26·66	Capsicum in Tr. Capsici.
oz. 1	50·000	21·83	21·943	20·00	Ext. Cannab. Ind. in Tr. Cannab. Ind.
oz. 1½	75·000	32·81	14·629	13·33	Opium in Tr. Opii.
oz. 2	100·000	43·75	10·971	10·00	Benzoin in Tr. Benz. Co.
oz. 2½	125·000	54·69	8·777	8·00	Aconite Root in Tr. Aconiti.
oz. 4	200·000	87·50	5·486	5·00	Red Bark in Tr. Cinchonæ.
oz. 5	250·000	109·38	4·389	4·00	Ergot in Tr. Ergotæ.
oz. 6	300·000	131·25	3·657	3·33	Orange Peel in Tr. Aurantii Recentis.
oz. 10	500·000	218·75	2·194	2·00	Ginger in Tr. Zingib. Fort.

TABLE OF COMPARISON OF QUANTITIES OF INGREDIENTS PER PINT, LITRE,  
&c.—STRENGTH OF TINCTURES, &c.—*continued.*

Per pint.	c. C. per litre.	m per ℥fl.	No. of c. C. or m contg. 1 c. C. or ℥ m.	Example.
m 5	•521	0•25	1920	Ol. Rosmar. in Tr. Lav. Co.
m 10	1•042	0•50	960	Ol. Menth. Pip. in Tr. Chlorof. et Morph.
m 30	3•125	1•50	320	Ol. Anisi in Tr. Camph. Co.
m 45	4•687	2•25	240	Ol. Lavand. in Tr. Lav. Co.
℥fl 1	6•25	3	160	Ol. Anisi in Tr. Opli Ammon.
℥fl 5	31•25	15	32	Ether in Tr. Chlorof. et Morph.
℥fl 1	50•00	24	20	Acetic Acid in Tr. Ferri Acet.
℥fl 1½	62•50	30	16	Acid Hydrocy. in Tr. Chlorof. et Morph.
℥fl 1½	75	36	13•33	
℥fl 2	100	48	10	Chloroform in Tr. Chlorof. Co.
℥fl 2½	125	60	8	„ in Tr. Chlorof. et Morph.

TABLE OF COMPARISON OF QUANTITIES OF INGREDIENTS PER PINT, LITRE, &c.—STRENGTH OF TINCTURES, &c.—*continued*.

Per pint.	c. C. per litre.	m per $\frac{3}{4}$ fl.	No. of c. C. or m contg. 1 c. C. or 1 m.	Example.
$\frac{3}{4}$ fl 3	150	72	6·66	Glycerine in Tr. Kino.
$\frac{3}{4}$ fl 4	200	96	5	Aq. Dest. in Tr. Nucis Vom.
$\frac{3}{4}$ fl 5	250	120	4	Rect. Sp. in Tr. Ferri Acet.
$\frac{3}{4}$ fl 6	300	144	3·33	
$\frac{3}{4}$ fl 7	350	168	2·86	
$\frac{3}{4}$ fl 8	400	192	2·5	„ „ in Tr. Chlorof. Co.
$\frac{3}{4}$ fl 9	450	216	2·22	Aq. Dest. in Tr. Ferri Acet.
$\frac{3}{4}$ fl 10	500	240	2	Tr. Card. Co. in Tr. Chlorof. Co.
$\frac{3}{4}$ fl 12	600	288	1·66	Rect. Sp. in Tr. Kino.
$\frac{3}{4}$ fl 16	800	384	1·25	„ „ in Tr. Opil Ammon.
$\frac{3}{4}$ fl 17 $\frac{1}{4}$	875	420	1	Proof Sp. in Tr. Quiniæ Ammon.

COMPARISON OF THE BRITISH AND METRICAL  
BAROMETERS.

Inches.	Milli- metres.	Inches.	Milli- metres.	Inches.	Milli- metres.
27.00	685.788	27.50	698.487	28.00	711.187
27.02	686.296	27.52	698.995	28.02	711.695
27.04	686.804	27.54	699.503	28.04	712.203
27.06	687.312	27.56	700.011	28.06	712.711
27.08	687.820	27.58	700.519	28.08	713.219
27.10	688.328	27.60	701.027	28.10	713.727
27.12	688.835	27.62	701.535	28.12	714.235
27.14	689.343	27.64	702.043	28.14	714.743
27.16	689.851	27.66	702.551	28.16	715.251
27.18	690.359	27.68	703.059	28.18	715.759
27.20	690.867	27.70	703.567	28.20	716.267
27.22	691.375	27.72	704.075	28.22	716.775
27.24	691.883	27.74	704.583	28.24	717.283
27.26	692.391	27.76	705.091	28.26	717.791
27.28	692.899	27.78	705.599	28.28	718.299
27.30	693.407	27.80	706.107	28.30	718.807
27.32	693.915	27.82	706.615	28.32	719.315
27.34	694.423	27.84	707.123	28.34	719.823
27.36	694.931	27.86	707.631	28.36	720.331
27.38	695.439	27.88	708.139	28.38	720.839
27.40	695.947	27.90	708.647	28.40	721.347
27.42	696.455	27.92	709.155	28.42	721.855
27.44	696.963	27.94	709.663	28.44	722.363
27.46	697.471	27.96	710.171	28.46	722.871
27.48	697.979	27.98	710.679	28.48	723.379

COMPARISON OF THE BRITISH AND METRICAL  
BAROMETERS—*continued*.

Inches.	Milli- metres.	Inches.	Milli- metres.	Inches.	Milli- metres.
28.50	723.887	29.00	736.587	29.50	749.286
28.52	724.395	29.02	737.095	29.52	749.791
28.54	724.903	29.04	737.603	29.54	750.302
28.56	725.411	29.06	738.111	29.56	750.810
28.58	725.919	29.08	738.619	29.58	751.318
28.60	726.427	29.10	739.127	29.60	751.826
28.62	726.935	29.12	739.635	29.62	752.334
28.64	727.443	29.14	740.143	29.64	752.842
28.66	727.951	29.16	740.651	29.66	753.350
28.68	728.459	29.18	741.159	29.68	753.858
28.70	728.967	29.20	741.667	29.70	754.366
28.72	729.475	29.22	742.175	29.72	754.874
28.74	729.983	29.24	742.683	29.74	755.382
28.76	730.491	29.26	743.191	29.76	755.890
28.78	730.999	29.28	743.699	29.78	756.398
28.80	731.507	29.30	744.206	29.80	756.906
28.82	732.015	29.32	744.714	29.82	757.414
28.84	732.523	29.34	745.222	29.84	757.922
28.86	733.031	29.36	745.730	29.86	758.430
28.88	733.539	29.38	746.238	29.88	758.938
28.90	734.047	29.40	746.746	29.90	759.446
28.92	734.551	29.42	747.254	29.92	759.954
28.94	735.063	29.44	747.762	29.94	760.462
28.96	735.571	29.46	748.270	29.96	760.970
28.98	736.079	29.48	748.778	29.98	761.478



COMPARISON OF THE BRITISH AND METRICAL  
BAROMETERS—continued.

Inches.	Milli- metres.	Inches.	Milli- metres.	Inches.	Milli- metres.
30.00	761.986	30.34	770.622	30.68	779.258
30.02	762.494	30.36	771.130	30.70	779.766
30.04	763.002	30.38	771.638	30.72	780.274
30.06	763.510	30.40	772.146	30.74	780.782
30.08	764.018	30.42	772.654	30.76	781.290
30.10	764.526	30.44	773.162	30.78	781.798
30.12	765.034	30.46	773.670	30.80	782.306
30.14	765.542	30.48	774.178	30.82	782.814
30.16	766.050	30.50	774.686	30.84	783.322
30.18	766.558	30.52	775.194	30.86	783.830
30.20	767.066	30.54	775.702	30.88	784.338
30.22	767.574	30.56	776.210	30.90	784.846
30.24	768.082	30.58	776.718	30.92	785.354
30.26	768.590	30.60	777.226	30.94	785.862
30.28	769.098	30.62	777.734	30.96	786.370
30.30	769.606	30.64	778.242	30.98	786.878
30.32	770.114	30.66	778.750		

REDUCTION OF BAROMETERS TO 0° C. (Exact Formula).

$$h = H \frac{5550}{5550 + t} (1 + kt).$$

$h$  = corrected heights.

$H$  = observed height, corrected for capillarity.

$t$  = temperature at time of observation.

$k$  = coef. of linear expansion of scale.

## USEFUL RECIPES.

A number of these were selected from the *Chemist and Druggist* with the kind permission of the Editor.

**Almond Paste.**—Sav. Prep. 110 p.; KHO soln. (26%) 60 p.; S.V.R. 5 p.; Ol. Amygd. Am. q.s.; trit. lard and KHO in mortar, leave 12 hrs., add spir., trit. till mass assumes pearly lustre.

**Asthma Cure.**—Grindel. robust.  $\frac{3}{4}$  i.; Jaborand. Fol.  $\frac{3}{4}$  i.; Eucalypt. Fol.  $\frac{3}{4}$  ss.; Digital. Fol.  $\frac{3}{4}$  ss.; Stramon. Fol.  $\frac{3}{4}$  il.; Cubeb.,  $\frac{3}{4}$  iv.; Pot. Nit.  $\frac{3}{4}$  ss.; Cascarill. Cort.,  $\frac{3}{4}$  i.; all ground and mixed.

**Beef and Iron Wine.**—Ext. carnis 2 oz.; Vin. Fe Citr. 20 fl.  $\frac{3}{4}$ ; Aq. A. rant. Fl. 4 fl.  $\frac{3}{4}$ ; Vin. Xer. to 40 fl.  $\frac{3}{4}$ ; dissol. extr. in orange fl. aq., add wines, filter after 2 days.

**Beetles, To exterminate.**—Red lead, sugar, flour: mix, and sprinkle near the holes.

**Benzine, To deodorise.**—Digest litharge in strong soln. of soda, and shake benzine up with this.

**Bitters, Blood purifying.**—Burdock rt. cut 4 p.; blue flag rt. 1 p.; dandelion rt. 3 p.; sassaf. bk. 1 p.; sarsap bk. 4 p.; wild cherry bk. 2 p.; yell. dock rt. 1 p.; mix and div. into portions of 2 p. ea. Mac. ea. portn. with 40 fl. p. aq. at gentle heat for 2 hr.; strain off 30 fl. p., add 10 fl. p. gin and sugar 4 p. Adult dose, 1 fl.  $\frac{3}{4}$  4 times a day.

**Bitters, Orange.**—Orange pl. 1 p.; citron pl. candied  $\frac{1}{4}$  p.; gentian rt.  $\frac{1}{4}$  p.; cascarella  $\frac{1}{4}$  p.; S.V.R. 5 fl. p.; aq. 15 fl. p.; shred, mac. 7 days, filter; aq. to 20 fl. p.

**Bitters, Tonic.**—Dandelion rt., gentian rt., chamomile flw., buchu lvs, hops, of ea. 1 p.; lf. sugar 8 p.; S.V.R. 12 fl. p.; aq. q.s.; boil rts., with 2 p. aq., add sugar, and S.V.R. when cold; aq. to 80 fl. p.

**Blacking, Boot.**—Ivory black 8 p.; molasses 4 p.; Ol. Oliv. 1 p.; oil of vitriol 1 p.; mix, add. aq. to proper consistence. *Another.* Ivory black 6 p.; sugar 4 p.; oil of vitriol 2 p.; sweet oil 1 p.; vinegar q.s.

**Blacking for Harness.**—Mutton suet 2 oz.; bees' wax 6 oz.; sug. candy powd. 4 oz.; soft soap 2 oz.; lmp. blk. 2½ oz.; indigo powd. ¼ oz.; melt fat, wax, add others, mix, thin to soft paste with turps.

**Black, Brunswick.**—Melt 2 lbs. asphaltum, heat 1 pint. bould. lin. oil, and add, when cold, 4 pints. turps.

**Blister for Horses.**—Cautiar. powd. 4 oz.; euphorbium powd. ¼ oz.; Capsic. powd. ¼ oz.; turps 2½ oz.; meth. spir. 17½ 3; dig. 14 days, strain.

**Blood Mixture.**—Pot. iod. 36 gr.; pot. chlor. 30 gr.; Liq. Arsen. 21 m; Spr. Chlorof. 3 3; Decoct. Sarsap. Co. to 6 fl. 3. Dose, 1 tablespil. 3 times a day.

**Boot Tops, Pink Powders for.**—Oxal. ac., alum, of ea. 1 oz.; Pb. acct., cream tart., singl., of ea. ¼ oz.; colr. with cochl. (for pink) or anatto; whole should be boiled in 1 quart aq. for 10 minutes.

**Brass, To blacken.**—Ag nitrate, Cu nitrate, make strong solus. of ea. and mix; immerse brass, remove and heat evenly till reqd. shade.

**Brilliantine.**—Ol. Amyg. 1 fl. p.; S.V.R. 2 fl. p.; otto q.s.

**Brilliantine, Inseparable.**—Ol. Ric. 1 fl. p.; Alcoh. Absol. 2 fl. p.; otto and oil neroli q.s.

**Butter Colouring.**—Annatoine 5 p.; turmeric 6 p.; odorless. hard oil 16 p.; rub together, mac. 3 days, filter, add oil to 16 p.; Span. saffron 1 p., alcob. 1 p.; make a tinct. Add this to oily prep., remove alcob. by gentle heat.

**Camphor Balls.**—To prevent chaps. Cetae. 180 p.; Cera Alb. 240 p.; Ol. Amygd. Exp. 4-6 p.; melt, stir in Camph. (pulv.), 180 p. Use after washing.

**Carriage Aprons, Dressing for.**—Glue 2 p.; white soap 4 p.; yell. wax 1 p.; neat's-ft. oil 1 p.; lmp. blk. q.s.; soften glue, melt over aq., dissolve soap in aq. q.s. and stir into glue, add wax in shavings, then oil, lastly black to colour.

**Cement for Bicycle Tires.**—Asphalt. 2 p.; gutta 1 p.; melt together, apply to *hot* wheel, then slip on tire.

**Cement for Glass, China, &c.**—(Glac. acet. ac. 10 vol., aq. 90 vol.; mix, of this take 56 p., in which dissol. 44 p. good thin gelatin.

**Cheese Colouring.**—Roll annato, K carb, of ea. 1 p.; digest 1 day in aq. 10 fl. p., filter, add aq. to 10 fl. p. if necessary.

**Chilblains, For.**—Camph. 1 oz.; oil cajup. 3  $\frac{3}{4}$ ; blk. bryony rt. 1 oz.; aconite rt.  $\frac{1}{4}$  oz.; Liq. Anm. Fort.  $\frac{1}{4}$  fl.  $\frac{3}{4}$ ; S.V.R. 12 fl.  $\frac{3}{4}$ ; mac. 7 days, filter. *Another.* Camph., oil amber, oil cajup., of ea. 2 oz.; alkanet rt.  $\frac{1}{4}$  oz.; turps 14 oz.; dig. 2 days, strain.

**Cochineal, Liquid.**—Cochl. 1 p., pot. carb. 1 p., boil these in aq. 7 fl. p.; HK tart. 1 p., pot. alum 1 p.; mix, add gradually to the aq. liqd.; filter when efferv. has ceased, wash residue with 2 fl. p. Prt. Spir., add aq. to 8 fl. p. Then dissolve sod. chlorid.  $\frac{1}{4}$  p., sugar 6 p., and add aq. to 16 fl. p. Glycerin. may be substituted for the spir. and sugar.

**Cockroaches, To exterminate.**—Plaster Paris, 2 p.; oatmeal 4 p.; sugar 1 p.

**Cologne Oil** (for making Eau de C.).—Ol. Bergam. 8 fl. p.; Ol. Limon. 4 fl. p.; oil swt. orange pl. 2 fl. p.; Ol. Amygd. Am. 2 fl. p.; Ol. Lavand. 4 fl. p.; Ol. Rosmar.  $\frac{1}{4}$  fl. p.; oil neroli 1 fl. p.; Ol. Caryoph.  $\frac{1}{4}$  fl. p.; ext. musk 8 oz.; alcohol. to 64 fl.  $\frac{3}{4}$ . Use 3 viii. to 1 gall. spirit.

**Composition Essence.**—Bayberry rt. blk. 3 oz.; ginger 10  $\frac{3}{4}$ ; cloves 4  $\frac{3}{4}$ ; capsicum 1  $\frac{3}{4}$ ; S.V.R. 14 fl.  $\frac{3}{4}$  or q.s.; aq. 6 fl.  $\frac{3}{4}$  or q. s. mix aq. and spir., damp powd. with 5  $\frac{3}{4}$  of the weak spir., percolate 1 day, make up to 20 fl. 3 with the weak spirit.

**Cordial, Aniseed.**—Ol. Anisi 3 ii.; S.V.R. 5 pnts.; syrup 11 pnts.

**Cordial, Peppermint.**—Ol. Menth. Pip. 3 i; S.V.R. 3 pnts.; Syrup 13 pnts.; Mg Carb. Lev.; shake 1 day, filter.

**Corn Cure.**—Ext. Cannab. Ind. gr. viii.; Ac. Salicyl. gr. 60; Colloid. Flex. 3 vi.; Ether 3 fl.; dissolv., mix.

**Custard Powder.**—Oswega corn-flour colored, with turneric and flavid, with ess. of almonds.

**Dandelion Cocoa.**—Powd. dand. ext. 4 p.; arrowrt. 4 p.; sug. 14 p.; powd. cocoa ext. 14 p.; mix.

**Dentrice, Liquid.**—Quillaja brk. 4 oz.; S.V.R. 3½ oz.; aq. 5 oz.; Ol. Gaulth. 30 m; mac. 10 days, filter. Cocculus 8 grs.; Aq. Menth. Pip. 3 iv.; Glycerin 3 2; filter. Mix both solns., Inf. Spir. to 3 24. Thymol, carbol. ac., &c., may be added, but no astringts.

**Depilatory.**—Orpiment 1 p.; starch, qk. lime, of ea. 12 p.; all in fine powd.; mix.

**Dubbing.**—Ol. Lini 200 p.; PbO 20 p.; Cera. Fl. 150 p.; tall w 15 p.; Theriaca 200 p; lamp blk. 100 p; turps 280 p; meth. spirt. 35 p.; shellac 5 p.; dissolv. lbtag, in l. oil by boileg. for 1 hr., add wax and tall, then treacle at 210° F., add lamp. blk., and then turps.

**Egg Powder.**—Similar to Custard Powd., but with different flavouring.

**Eau de Cologne.**—Ol. Lavand. 3 i.; oil neroli 3 ii.; Ol. Limon. 3 i. ss.; Ol. Bergam. 3 iii.; otto m iii.; Mosch. gr. ii.; one Tonq bn. powd.; Benz gr. xx.; S.V.R. fl. 3 xl.; dig. 2 days, add 3 ii. Mg Carb. Lev. and 2 oz. orange flw. aq., filter in 7 days.

**Elder Wine.**—Ripe berries freed from stalks, 5 lbs., bruise, mac. with 1 gall. aq. (soft or dist.) for 2 days with stirring; remove liq. by pressg. and straining, add sugar 4 lbs., cream tart. 1½ oz. (dissd. in aq.), set aside in warm place 4 days, skim and stir occasionally; fill casks leaving bung open, transfer to other casks in 7 days, add ½ 3 brandy to pint, *pull* casks and bung down; use finings in 4 weeks if not clear.

**Elixir of Cascara Sagrada.**—Tr. Zingib 3 iv.; Tr. Card. Co. 3 i. ss.; Ext. Glycyrrh. liq. 3 ii.; Ext. Case. Sagrad. 3 iv.; mix. Dose for adult, 4 to 1 teaspfl.

**Elliman's Embrocation (Hagar).**—Albumen 2 p.; turps 8 p.; acct. ac. (crude) 50 p.; aq. 50 p; meth. spir. 60 3. mix.

**Enamel, Black, for Cycles.**—Asphalt. 40 oz.; boil. lin. oil  $\frac{1}{2}$  gall; red lead 6 oz.; litharg 6 oz.; Zn. sulphid. dissol. powd. 4 oz.; melt asph., add others, boil 2 hrs., stir in 8 oz. fused dark amber gum and 1 pint hot lin. oil; boil 2 hrs. more. When mass has thickened, remove fire, and thin with turps 1 gall.

**Essence of Rennet.**—1 clean fresh rennet minced, salt 4 oz., R.S.V. 4 oz. glycern. 2 oz., syrupy lact. ac.  $\overline{3}$  i., aq. 20 fl.  $\overline{3}$ ; digest 7 days, shake. fr. q. filter, add Chlorof. 10 m, Tr. Clove q.s. to colour, aq. to 10 fl.  $\overline{3}$ .

**Florida Water.**—Ol. Lavand., Ol. Bergam., of ea.  $\overline{3}$  iv.; oil of neroli  $\overline{3}$  ii.; oil of orange  $\overline{3}$  iv.; Ol. Caryoph.  $\overline{3}$  i.; Moschus gr. iv.; eau de Colog., aq., S.V.R., of ea.  $\frac{1}{2}$  gall; mac. 7 days, filter through magnesia.

**Glycerine Cream.**—Glycern. 6 oz.; rose aq. trip. 5 oz.; Tr. Arnica  $\frac{1}{3}$ ; Ac. Borac.  $\frac{1}{2}$  oz.; diss. acid. in glyc. by heat and add mixt. to others previously mixed.

**Gun-sights, Composition for.**—(Ias-black  $\frac{1}{3}$ ; meth. spir. 2 fl.  $\overline{3}$ ; spir. varnish 2 fl.  $\overline{3}$ ; mix.

**Hair, Bandoline, to stiffen.**—Tragac. (picked) powd. 1 oz.; Aq. Rose 1 pint.; mix, shake 3 days, strain and colour.

**Hair Dye, Black.**—Ag. nit.  $\overline{3}$  iv.; Na carb.  $\overline{3}$  vi.; dissolv. ea. in 8 fl.  $\overline{3}$  aq., mix, collect ppt., wash, drain, add 80 grs. tart. ac. d. stir, add (when efferv. ceased) ammonia q.s. to dissolve, and 2  $\overline{3}$  ea. glycern. and mucilg., carmine or orchil to col., and aq. to 5 fl.  $\overline{3}$ .

**Hair Dye.**—"Aureoline." A soln. of hydrogen peroxide of 10 or 20 vol.

**Hair Dye, Brown.**—Ac. Pyrogall.  $\frac{1}{2}$  oz.; Na sulphid. 4  $\overline{3}$ ; S.V.R. 1 fl.  $\overline{3}$ ; aq. 8 fl.  $\overline{3}$ ; dissolv. acid in spir., sulph. in aq.; mix.

**Hair Dye, Brown.**—(1) Pyro. 4 gr.; Aq. Dest. 2 fl.  $\overline{3}$ ; mix and apply. After 15 min. apply (2) silv. nit. 60 gr.; Acic. Gummi 60 gr.; Aq. Dest. 2 fl.  $\overline{3}$ ; mix.

**Hair Restorer.**—Pb. acct. 2 p.; Lac. Sulph. 3 p.; glycer. 8 p.; Aq. Rosæ to 64 fl. p.

**Hair Restorer.**—Sulphur 45 gr.; lead acct. 20 gr.; glycerin 4 fl. 3; aq. to 10 fl. 3; mix.

**Hair Restorer, Transparent.**—Pb. nit. 60 gr.; Na hyposulph. 1 oz.; Aq. Amm. 3 ss.; glycern. 3 ss.; ess. white rose 3 i.; aq. to 3 x.; dissolv. Pb. nit. in aq. 3 fl. and hypo. in aq. 3 iv.; mix, add others, and filter.

**Hop Tonic.**—Tr. Lupuli, Tr. Podoph., of ea. 3 ss.; Tr. Buchu, Tr. Senega, of ea. 3 iii.; colourg. q.s.; Aq. to 3 xx. *Another.* Lupulus 4 oz.; Tarax. Rad. 14 oz.; Podolph. Rad. 4 oz.; Buchu Fol. 1 oz.; inf. in 112 3 boilg. aq. for 12 hrs., strain, add 16 3 S.V.R. Dose of both these 1 tabspfl.

**Hair Wash, not greasy.**—Glycerin. 3 iv.; Tr. Canthar. 3 iv.; Liq. Amm. 3 iv.; conc. rose water 3 ii.; bay rum 3 x.

**Hair Wash Powder.**—Borax powd. 1 lb.; Camph. 3 i.; Ol. Berg. m 20; mix.

**Hair Wash, Rosemary and Cantharides.**—Ac. Acet. 3 iv.; Acet. Canth. 3 i.; Spir. Rosmar. 3 i.; ess. white rose 3 i.; Aq. to 3 viii.

**Incense.**—Styrax 24 oz.; Benzoin. 12 oz.; Moschus 15 gr.; camph. 4 oz.; frankincense 24 oz.; Tragac. 14 oz.; Aq. Rose q.s.; div. into small tablets.

**Ink, Blue Black.**—Galls 20 powd. 4 oz.; aq. 16 3; mac. 24 hrs., strain, press; mac. again with aq. 8 3, strain, Ac. To mixd. liqds. add white bole 3 ii.; strain; aq. to 22 3. Fe sulphat. 3 iv., sugar 3 vi., Ac. Hydrochl. 3 i.; dissolv. in aq. 8 3; add to gall. infusn. Next dissolv. anil. blue 154 gr. in aq. 14 3 with heat, and add to ink. Use after 14 days. Carbol. ac. 10 m per 20 3 to preserve.

**Ink for Rubber Stamps.**—Aniline col. (viol. or crim.) 1 p.; aq. 4 fl. p., meth. sprt. 4 fl. p.; dissol.; add treacle, glycern., of ea. 1 p.

**Kid Reviver.**—Logwood 4 p., copper-as  $\frac{1}{2}$  p., aq. 40 fl. p.; boil  $\frac{1}{2}$  hr. and strain into tragac. powd.  $\frac{1}{4}$  p., soft soap 1 p., glycer. 3 p.; add 1 fl. p. meth. spir. contg.  $\frac{1}{4}$  p. sacyl. ac., Ol. Gaulth. 4 m, aq. to 40 fl. p.

**Linctus, Linseed Cough.**—Chlorodyne xlv. m; Ol. Anisi m iv.; Fr. Tolu  $\frac{5}{8}$  ss.; Fr. Senega  $\frac{3}{8}$  ss.; Oxy. Scyllæ  $\frac{1}{2}$  i. ss.; Inf. Lin ad  $\frac{3}{4}$  vii. Dissolv. oil in tinct., add oxymel, mix in others. Dose,  $\frac{3}{4}$  i. to  $\frac{3}{4}$  li.

**Linseed, Essence of.**—Chlorodyne 45 m; Ol. Anisi 4 m; Fr. Tolu 4  $\frac{3}{8}$ ; Fr. Senega  $\frac{1}{2}$  fl.  $\frac{3}{8}$ ; Oxy. Scyllæ  $1\frac{1}{2}$   $\frac{3}{8}$ ; Inf. Lin to 3  $\frac{3}{8}$  add oil in Tinct. Tolu to oxy., mix others by shaking.

**Menthol Plaster.**—Emp. Plumbi 75 p., Cora Fl. 10 p., Resina 5 p., melt, strain, and add Menthol 10 p.: mix.

**Mother's Friend.**—Ol. Aneth. m viii.; Sp. Ann. Arom.  $\frac{3}{4}$  i.; Mag. carb.  $\frac{3}{4}$  i.; Aq.  $\frac{3}{4}$  iv.; mix, filter, add to filtrate ad. Sod. bromid.  $\frac{3}{4}$  i.; K bicarb.  $\frac{3}{8}$  ss.; Fr. Card. Co.  $\frac{3}{8}$  ss.; Syr. Rhed.  $\frac{3}{4}$  vi. Mix; dose, 1 teaspoon.

**Myrrh and Borax, Tincture of.**—Myrrh 1 lb.; can de Coln. 16 lbs.; borax 1 lb.; dist. aq. 3 lbs.; syrup 3 lbs.; ess. of roses 6  $\frac{3}{8}$ ; rhat. rt. 4 oz.; dig. 10 days, filter.

**Oil for Flies and Maggots.**—Corros. sublim. powd. 1 oz.; meth. spir. 8 oz.; spir. of tar 10 oz.; quillain powd. 2 oz.; aq. to 1 gall: dissolv. subl. in spir., add quill. and 20  $\frac{3}{4}$  of aq., mac. over night, add sp. of tar and rest of aq., shake, strain in 2 days.

**Paint for Black Eyes.**—Bismuth 2 p.; tale 1 p.; col. with carmine to skin tint. Wash part with mixt. of; glycern. 1 p., aq. 5 p.; dry and apply powder.

**Pastils for Burning.**—Yell. sanders 3 oz.; styrax 4 oz.; Benzoin. 3 oz.; olubacum 6 oz.; Cascarilla 6 oz.; ambergris 1 dr.; Bals. Peruv. 2 dr.; Myrrha  $1\frac{1}{2}$  oz.; pot. nit. 14 oz.; Ol. Cinnam. 20 m; Ol. Carni  $\frac{1}{2}$  fl.  $\frac{3}{8}$ ; otto 40 m; Ol. Lavand.  $\frac{1}{2}$  fl.  $\frac{3}{8}$ ; Bals. Tolut.  $1\frac{1}{2}$  fl.  $\frac{3}{8}$ ; Camphora  $\frac{1}{2}$  oz.; strong acct. acid 2 fl.  $\frac{3}{8}$ ; charcl. 3 (or 4, or 5) lbs.; mix, form into paste with Mucil. Trag., mould into cones.

**Pastils for Burning.**—Benzoin 1 oz.; Cascarilla 1 oz.; Myrrha 160 gr.; Ol. Myrist. 80 m; Ol. Caryoph. 80 m; pot. nit.  $\frac{1}{2}$  oz.; charcl. 6 oz.; Mucil. Trag. q.s.



**Pickling Mixture.**—Com. salt 3 lbs.; brown sug.  $\frac{1}{2}$  lb.; pot. nit. 4 oz.; aq. 2 gall.; boil  $\frac{1}{4}$  hr., strain. Bay salt, com. salt, of ea. 8 oz.; brown sugar 6 oz.; pot. nit., blk. pepper, of ea. 2 oz.; mix. Well rub meat with the powd. and soak in pickle 14 days.

**Pill for Gout and Rheumatism.**—Ext. Colech. Acet. gr. xii.; Ext. Coloc. Co. gr. 48; Ferri et Quin. Citr. gr. 24. Make 24 pills, one for a dose at bedtime.

**Plate Powder** (non-mercurial).—Ca Carb. Prec.; Mg Carb.; rouge to colour. Use with Liq. Ammon.

**Polish. To apply with brush.**—Seedlac 4 p.; Canada bals. 1 p.; drag. bld. q.s.; meth. spir. 20 fl. p.; digest 7 days, strain.

**Pomade Hongroise.**—Cera Alb. 12 p.; Sapo Dur. 1 p.; Acac. Gum. 1 p.; Aq. Ros. 2 fl. p.; perfume q.s.; dissolve gum, soap, in warm aq., add molten wax, add perf.; col. with fine drop black, or bt. umber.

**Pomatum, Ebony.**—Cera Alb. 4 oz.; any pomade 12 oz.; melt, add levigated ivory blk. 2 oz.

**Pot Pourri.**—Lavend. flwrs. 1 lb.; Orris 1 lb.; Rose lvs. 1 lb.; cloves  $\frac{1}{2}$  lb.; Cinnam.  $\frac{1}{2}$  lb.; benzoin  $\frac{1}{2}$  lb.; pimento  $\frac{1}{2}$  lb.; com. salt 2 $\frac{1}{2}$  lb.; oil lavand. 60 m; oil santal 60 m; oil geran. 60 m; oil bergam. 120 m; oil lemon 120 m; otto 10 m; vanilla 3 oz.; musk pods 1 oz.; ess. ambergris  $\frac{1}{2}$  oz. Solids all ground.

**Pot Pourri** (used for mixing with rose leaves).—Tonq. bn.  $\frac{1}{2}$  p.; Cinnam., Caryoph., Pimenta, of ea. 1 oz.; Coriand. Fr. 4 oz.; Benz. 5 oz.; orris it. 1 lb.; reduce to powd., mix, adding  $\frac{1}{3}$  ess. bouquet towards end.

**Powder, Baking.**—Tart. ac. 16 p.; Na bicarb. (drd. and powd.) 21 p.; ground rice 50 p.; mix. *Another.* Cream. tart. 23 p.; Na bicarb. 10 p.; tart. ac. 1 p.; flour 8 p.; mix.

**Powder, Face.**—Zn Oxid. 3  $\overline{3}$ ; starch powd. 3 oz.; carmine 1  $\overline{3}$ ; otto 4 m.

**Powder for Face.**—Starch fine powd. 2  $\overline{3}$ ; tale 10  $\overline{3}$ ; Bi sub-nit. 10  $\overline{3}$ ; carmine q.s.; perfume q.s.; mix well.

**Powder, Jockey Club.**—Lavand. Fl.  $\frac{1}{2}$  oz.; rose lvs.  $\frac{1}{2}$  oz.; orris rt. 2 oz.; vanilla beads  $\frac{1}{2}$  dr.; musk 4 gr.; ext. of jasmine 2 drs.; oil of sandal 20 m; oil of rose 5 m; otto 10 m.

**Powders, Teething.**—Pulv. Antim gr. ss.; Ilg Subchlor. gr. ss.; Sacch. Alb. Pulv. gr. ii.; mix. For child of 1 year.

**Powder, Violet.**—Orris pwd. 4 oz.; ess. of bergamot 20 m; ess. of ambergris 20 m.

**Powder, Thriving, for Pigs**—Sb Nig. 4 p.; Gentian Rad., Glycyrr. of ea. in pwd. 2 p.; Zingib., Fe Sulphid., of ea. 1 p.; mix. Dose, 1 tabspfl.

**Rennet, Essence of.**—One calf's rennet; Ac. Lact.  $\overline{3}$  i.; glycern.  $\overline{3}$  i.; Vin. Xer.  $\overline{3}$  ii.; Aq. to 36 fl.  $\overline{3}$ ; mac. minced ren. with the salt (abt. 3 oz.) used to preserve in the liqds. for 10 days, filter, colour with cochineal.

**Ribbon Ink,** as used for stampg. railway tickets.—Vasel. or petrol. ointment of high melt. pt., melt by heat, add lamp black as much as possible without granulation. While coolg. add mixt. of eq. pts. of turps and benzol till consist. of fresh paint.

**Ribbon of Bruges.**—Pot. nit. 1 p.; aq. 16 fl. p.; dissolv., and immerse narrow tap, wh. is to be dried and then twice immersed in this tinct.;—Benz. 1 oz., musk 10 gr., myrrh  $\overline{3}$  2, bals tolu  $\overline{3}$  2, orris rt. 1 oz., otto m 10, rect. spir.  $\overline{3}$  10; dig. 7 days, filter.

**Rum Shrub.**—Bitter orange juice  $\frac{1}{2}$  gall.; sugar 8 lbs.; rum 10 u. p. 14 gall.; dissolv. sug. in juice, add rum to cold syrup. Clarify with isinglass.

**Sachet, New Mown Hay.**—Orris pwd. 4 lbs.; Tonq. lvs. grnd.  $\frac{1}{2}$  lb.; vanilla grnd.  $\frac{1}{2}$  lb.; Ol. Amygd 10 m; oil French geraniums 120 m; otto 30 m; Ol. Bergam. 60 m; ess. of musk 14 m.

**Saline.**—Ac. Tart. 9 oz.; Sod. bicarb. 10 oz.; Pot. chlorat. 120 gr.; Mg sulph. dtd. 180 gr.; sugar 3 oz.; all quite dry, mix.

**Sarsaparilla, Iodized.**—Kl  $\overline{3}$  i.; Decoct. Sarsa Co. (conc.  $\overline{3}$  i. ss.; Aq.  $\overline{3}$  vi.; 1 tablespfl. for a dose.

**Scouring Liquid.**—Sapo Anim. 1 lb.; K carb. 1 oz.; Ld. Anim. 1 gall.; dissolve soap and carb. in 6 gall. boiling aq., add ammon. when cold.

**Senna, Sweet Essence of.**—Senna 15 lbs.; boilg. aq. 5 gall.; percol. and evap. to 10 lbs., dissolve 6 lbs. treacle evapor. till nearly solid, add S.V.R. 14 pint.; filter after 2 days, aq. to 15 lbs.

**Shampoo Liquor.**—Sapo Moll. 3 i.; Liq. Potass. 3 ii.; S.V.R. 3 ii.; ess. of jock. clb. 3 iii.; Aq. to 3 xx.

**Shampoo Liquor, American.**—Lum 3 qts.; S.V.R. 1 pint., aq. 1 pint.; Tr. Canthar. 4 fl. 3; Ammon. carb. 4 oz.; salt of tart. 1 oz.; rub it on, afterwards wash.

**Shoe Blacking (liqd.).** Ivory black, treacle, of ea. 16 p., mix, add sperm oil 16 p., then conc. sulphuric acid 4 p., stirring while adding. Mix vinegar 20 fl. p., gum acac. 4 p., and use to thin the blacking.

**Silvering Powder.**—Ag Cl 3 p.; salt of tartar 6 p.; Creta Prep. 2 p.; Na Cl 3 p.; mix. Use moist.

**Soap, Arsenical.**—Sapo Moll., Ac. Arsenios., Ca Hydr., of ea. 4 oz.; Na carb. 12 oz.; camph. (pulv.) 4 oz.; mix and make into paste with aq.

**Sponges, To bleach.**—Pot. permang. 1 oz.; acid. sulph. 4 oz.; aq. 1 gall.: immerse washed sponges until pale, then immerse in aq. containing 4 oz. pot. carb. per gall. till of golden tint.

**Sponges, To bleach.**—Soak in mixt. of hydrochl. acid 1 fl. p., aq. 5 fl. p.; rinse, immerse in soln. of pot. permang. 1 p. in aq. 160 fl. p.; wring, immerse in a soln. of sod. hyposulph. 16 p., aq., 160 fl. p., hydrochl. acid 1 p. Wash well.

**Starch Gloss-Liquid.**—Borax satd. soln. 2 p.; Mucil. Tragac. 1 p.; mix. One tablespnfl. to 1 pint. of starch. *Another.* Cetac. 1 p.; gum acac. 1 p.; borax 1 p.; glycern. 2½ p.; aq. 14½ p.; powd. sperm. with borax, and make emuls. with gum and aq., then add glycerin.

**Syrup, Ginger, for Syphons.**—Sol. ess. of ginger 3 x.; Tr. Limon. 3 i.; ess. of vanilla m xx.; Tr. Capsic. 3 i.; mix. Add 4 to 1 3 to 1 pint. of syrup, colour with caramel.

**Syrup, Lemon, for Syphons.**—Syrup 4 gall.; citr. ac. 2 oz.; Ol. Limon 4 3; otto m ii.; alcob. q.s.; mix Mg Carb. Lev. 4 oz. with the essences, then add spir. and pour mixt into syrup, filter through flannel, add acid dissol. in 3 iii. hot aq.

**Tooth Paste.**—Creta Prep. 1 lb.; oris powd. 4 oz.; carmine 3 i.; mix, Honey 1 lb.; melt and skim; glycern. 4 lb.; mix. Add powd. to paste till proper consistence. To make *aromatic* add carb. ac. 3 ss., Ol. Gaulth. 20 m., Ol. Cinnam. 5 m; in S.V.R. 3 ss.

**Tooth Powder, Saponaceous.**—Creta Prep., Mag. Carb. Pond., of ea. 180 p.; pulv. iud., pulv. sapon. alb., of ea. 60 p.; otto of rose 1 p.; rub soap and iris with otto 10 min., add powds., then 10 p. carbol. ac.; sift.

**Varnish.**—Alphatium 2½ lbs.; turps 8 oz.; double gold size 3 oz.; soln. ind. rub. 4 oz.; boild. lin. oil 3 oz.; veg. black 3 i.; simmer till dissolved.

**Varnish, Copal.**—Copal 32 p., fuse in iron pot, add Ol. Lin 20 fl. p., heat till stringy, turps q.s. to thin.

**Varnish for Violins.**—Coarsely powd. copal and glass of ea. 4 oz.; camph. 4 oz.; meth. spir. 1 pint.; heat stirring on aq. bath, so that bubbles may be counted as they rise, until soln. complete; decant.

**Varnish, Spirit.**—Shellac 2 lbs.; sandarach 4 lb.; gum thus 6 oz.; spir. 1 gall.; dissolv., strain.

**Varnish, Theatrical, for affixing mustaches.**—Resin 4 p.; Ol. Ric. 1 p.; meth. spir. 16 fl. p.; dissolv., strain, perfume.

**Vermin Killer.**—Strych. 1 p.; Ac. Arsenios. 4 p.; Sacch. 3 p.; pruss. blue q.s.

**Vinegar, Aromatic.**—Ol. Lavand. 3 i.; Ol. Caryoph. 5 i.; ess. bergam. 5 i.; Ol. Limon 3 ss.; Camph. 3 ii.; Ol. Cinnam. m xv.; Mosch. gr. iv.; Acid. Acet. Glac. 3 iv.; mix; aq. to 100 3.

**Vinegar, Toilet.**—Ol. Lavand., Ol. Rosmar., Ol. Cinnam., Ol. Junup., Ol. Menth. Pip., of ea. m iv.; Ol. Licoon., Ol. Caryoph., of ea. m viii.; Alcob. 1 fl. 3 iii.; Acid. Acet., fl. 3 iv.; Aq. to fl. 3 16.

**Washing Fluid.**—Soap 2 oz.; Boilg. rain aq. 1 gall.;  
Liq. Amm. Fort. 4  $\frac{3}{4}$ : dissolve.

**Wax, Iodolized.**—Paraff. 2 p.; Cetac. 2 p.; iodol 1 p.;  
carmine 1 p.; Cera. Fl. 3 p.; melt waxes below 100° C.,  
str. in powd.

**Worms on Bowling Greens, to destroy.**—Liq. Hg Perchlor.



## INDEX.

- 
- Abstracts, U.S.P., 230  
 Aceta, B.P., 146  
 Aceta, U.S.P., 223  
 Acids, Examination for, 413  
 Alkaloids, Non-Volatile, 455  
     — Volatile, 457  
 Analytical Notes, 396  
 Animal Calculi, 122  
 Antidote Bag, 357  
 Antidotes, 357  
 Apothecaries' Weight, Conversion, 461-479  
 Aqua, B.P., 147  
     — U.S.P., 193  
 Arrowroot, 142  
 Ash of Drugs, 431  
 Atomic Weights, 459  
 Avoidupois Weight, Conversion, 464-479  
 Barley, 141  
 Barometers, Comparison of, 510  
     — Correction to 0° C., 511  
 Beverages, 143  
 Boiling Points, 373  
 Borax Beads, 402  
 Botanical Arrangement of Drugs, 217  
     — Glossary, 285  
 Calculi, Examination of, 422  
 Capacity, Measures of, 463  
 Cataplasms, B.P., 148  
 Cerates, U.S.P., 240  
 Charta, B.P., 148  
     — U.S.P., 244  
 Cinchona Alkaloids, 418  
 Clysters, 153  
 Coffee, 143  
 Collodions, B.P., 149  
     — U.S.P., 207  
 Colour Reactions, 416  
 Comparison of Thermometers, 379  
     — of Ingredients, quantities of, per pint, &c., 506  
 Composition of Cereals, 142  
 Condiments, 141  
 Confections, B.P., 149  
     — U.S.P., 237  
 Conserves, B.P., 149  
 Conversion of Avoidupois and Apothecaries' Weights, 464-479  
 Decimal Equivalents of various Weights, 503  
 Decoctions, B.P., 150  
     — U.S.P., 209  
 Density of Liquids, B.P., 375  
 Discs, Gelatine, B.P., 163  
 Domestic Treatment in Poisoning, 358  
 Dosage Table, 372  
 Drugs arranged Botanically, 247  
 Dry Tests for Solids, 398
-

- Ectectic Resinoids, 245  
 Electuaries, B.P., 149  
 Elements, List of, 459  
 Emplastra, B.P., 151  
 Ememas, B.P., 153  
 Ememata, B.P., 153  
 Equivalent Rates per cwt., lb., &c., 502  
 Equivalents, — Decimal, of Weights, 503  
 Essences, B.P., 153  
 Essentia, B.P., 153  
 Essential Oils, 193  
 Examination for Acids, 413  
 — of Solids in Dry way, 398  
 Extracts, B.P., 153  
 — U.S.P., 224  
 — Fluid, U.S.P., 216  
 Fixed Oils, 196  
 Fluid Extracts, U.S.P., 216  
 Foods, 141  
 Gall Stones, 422  
 Gelatine Discs, B.P., 163  
 Glossary, Botanical, 285  
 — of Latin Terms, 314  
 — of Medical Terms, 332  
 Glycerines, B.P., 159  
 — U.S.P., 205  
 Grains, Composition of Cereal, 142  
 — Conversion into, 464-479  
 Grammes, Conversion into, 464-479  
 Honeys, B.P., 169  
 — U.S.P., 203  
 Hypodermic Injections, B.P., 162  
 Immiscible Solvents, behaviour of Organic Substances with, 395  
 Indicators of B.P., 444  
 Infusions, B.P., 160  
 — U.S.P., 209  
 Injections, Hypodermic, 162  
 Juices, B.P., 176  
 Lamella, B.P., 163  
 Latin Terms, 306  
 — Glossary of, 314  
 Length, Measures of, 463  
 Liniments, B.P., 163  
 — U.S.P., 208  
 Liquids, Specific Gravity of, (B.P.), 375  
 — U.S.P., 377  
 Liqueurs, B.P., 164  
 — U.S.P., 199  
 Lotions, B.P., 169  
 Lozenges, B.P., 186  
 — U.S.P., 234  
 Maize, 141  
 Masses, U.S.P., 237  
 Medical Terms, Glossary, 332  
 Medicine Grains compared with Metric Weights, 504  
 Mellita, B.P., 169  
 — U.S.P., 203  
 Molding Points, 374  
 Metric Weights, 463  
 Microcosmic Salt Beads, 403  
 Mixtures, B.P., 170  
 — U.S.P., 204  
 Mucilages, B.P., 171  
 — U.S.P., 203  
 Natural Orders of Plants, 217  
 Oats, 141  
 Oils, fixed, 196  
 — volatile, 193  
 Ointments, B.P., 188  
 — U.S.P., 241  
 Oleata, B.P., 171  
 Oleates, U.S.P., 203



- Oleoresins, B.P., 171  
   — U.S.P., 223  
 Opium Alkaloids, 452  
 Organic substances, behaviour  
   with Immiscible Solvents,  
   395  
 Oxymel, B.P., 171
- 
- Papers, B.P., 148  
   — U.S.P., 244  
 Percentages into cwts., &c., 500  
 Pharmaceutical Preparations,  
   Definitions of, 144  
 Pills, B.P., 171  
   — U.S.P., 238  
 Plants, Natural Orders of, 247  
 Plasters, B.P., 151  
   — U.S.P., 242  
 Poisoning, Symptoms, 359  
   — Treatment for, 359  
 Posological Table, 372  
 Poultices, B.P., 148  
 Powders, B.P., 174  
   — U.S.P., 231  
 Prescriptions, Latin Terms  
   used in Writing, 306  
 Pulveres, B.P., 174  
   — U.S.P., 231
- 
- Reactions, Colour, of alkaloids,  
   &c., 416  
   — Dry, 398  
   — of Alkaloids, 448  
   — Wet, see Analytical Notes  
   — with Indicators, 445  
 Recipes, Useful, 512  
 Resinoids, Eclectic, 215  
 Resins, U.S.P., 231  
 Rice, 141  
 Rye, 141
- 
- Sago, 142  
 Secretions, Examination of, 420
- 
- Solubility of Substances, 383  
 Solutions, B.P., 164  
   — U.S.P., 199  
 Specific Gravity of Liquids,  
   B.P., 375  
   — — U.S.P., 377  
 Spirits, B.P., 175  
   — U.S.P., 205  
 Starchy Foods, 142  
 Strychnos Alkaloids, 454  
 Succ, B.P., 176  
 Suppositories, B.P., 177  
 Symbols of Elements, 459  
 Symptoms of Poisoning, 359  
 Syrups, B.P., 178  
   — U.S.P., 200
- 
- Tabella, B.P., 180  
 Table of Ash of Drugs, 431  
   — of Dosage, 372  
 Tables, B.P., 180  
 Tapioca, 142  
 Tea, 142  
 Technical Phrases, Latin, 306  
 Terms, Botanical, Glossary of,  
   285  
   — Latin, Glossary of, 314  
   — used in Medicine, 332  
 Testing, Notes on, 396  
 Test Solutions of B.P., Volum-  
   etric, 440  
 Thalleioquin Test, 420  
 Thermometers, Comparison of,  
   379  
 Tinctures, B.P., 181  
   — U.S.P., 210  
 Treatment for Poisoning, 358,  
   359  
 Triturations, U.S.P., 234  
 Trochisci, B.P., 186  
   — U.S.P., 234  
 Troy, see Apothecaries.

- Unguenta, B.P., 188  
 — U.S.P., 211  
 United States, Official Weights,  
     &c., 463  
 Urine, Testing, 426  
 Useful Recipes, 512  
 Vapours, B.P., 191  
 Vinegars, B.P., 146  
 — U.S.P., 223  
 Vina, B.P., 191  
 — U.S.P., 215  
 Volatile Oils, 193  
 Volumetric Analysis, Indi-  
     cators, 411  
 —————  
 Volumetric Test Solution—  
     B.P., 440  
     Vomit, Testing, 423  
 Waters, B.P., 147  
     — U.S.P., 198  
 Weights, Atomic, 459  
     — Conversion of, 464-479  
     — and Measures, 461  
     — ——— Metric and  
         otherwise, compared, 501  
     Wheat, 141  
     Wines, B.P., 191  
     — U.S.P., 215



*Illustrated with Plates and Sections, Fvo, cloth, 5s.*

---

THE

# HYDROPATHIC ESTABLISHMENT

## AND ITS BATHS.

BY

R. O. ALLSOP, Architect,

AUTHOR OF 'THE TURKISH BATH.'

---

### CONTENTS.

General Considerations — Requirements of the  
Hydropathic Establishment—Some existing Institu-  
tions—Baths and Treatments and the arrangement  
of the Bath-House—Vapour Baths and the Russian  
Bath—The Douche Room and its appliances—  
Massage and Electrical Treatment—Pulverisation  
and the Mont Dore Cure—Inhalation and the Pine  
Cure—The Sun Bath.

---

E. & F. N. SPON, 125 Strand, London.

*With 32 Engravings, in 8vo, cloth, 12s. 6d.*

---

# PERFUMES

## AND THEIR PREPARATION,

Containing complete directions for making Handkerchief Perfumes, Smelling-Salts, Sachets, Fumigating Pastils, Preparations for the care of the Skin, the Mouth, the Hair, and other Toilet articles, with a detailed description of Aromatic Substances, their nature, tests of purity, and wholesale manufacture.

By G. W. ASKISON,

DR. CHEM.

---

E. & F. N. SPON, 125 Strand, London.



















BURROUGHS, WELLCOME & CO.

LIBRARY

No.

BURROUGHS, WELLCOME & CO.

